



INTERNAL CORRESPONDENCE

UNION CARBIDE NUCLEAR COMPANY

POST OFFICE BOX X. OAK RIDGE. TENNESSEE

To (Name) Mr. K. W. Bahler
Company ORGDP
Location Oak Ridge, Tennessee

Date April 26, 1965

Originating Dept. Health Division, ORNL

Answering letter date 4-9-65

Copy to M. E. Ramsey
H. E. Seagren
K. Z. Morgan
S. I. Auerbach
H. G. MacPherson

Subject AEC REQUEST FOR INFORMATION ON USE OF
PEST CONTROL AGENTS--PESTICIDES,
FUNGICIDES, HERBICIDES, RODENTICIDES

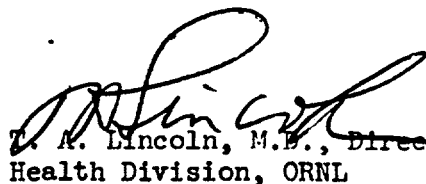
Dear Mr. Bahler:

The use of pesticides including rodenticides, insecticides and other similar materials in quantities that could cause real or apparent problems at the Laboratory is restricted to use by two specific groups.

The Ecology group of the Health Physics Division is presently undertaking the problem of pine beetle control in the forest areas on the AEC reservation. The information concerning this program is included in attachment 1.

The only other group using significant quantities of these materials is the Building and Grounds Department in the Plant and Equipment Division. The information relative to this program is contained in attachment 2.

Please advise me if any of the attached information requires clarification.


T. A. Lincoln, M.E., Director
Health Division, ORNL

TAL:NEB:mlh

This document has been approved for release
to the public by:


David H. Harris 1/31/96
Technical Information Officer Date

ATTACHMENT I

RE: AEC REQUEST FOR INFORMATION ON USE OF PEST CONTROL AGENTS

1. Department: Health Physics Division, Radiation Ecology Section.
2. Program Title: Southern Pine Beetle Control Project.
3. Location: Infested areas randomly located on forested areas of Oak Ridge Reservation.
4. Objectives: To control an epidemic of the Southern Pine Beetle. (Dendroctannus frontalis).
5. Basis for the program: The Southern Pine Beetle is one of the most destructive forest insects. The beetle attacks and invariably kills the three species of southern yellow pine growing on the Reservation. Because of its great reproductive potential and attack pattern, it is a difficult insect to control. The only known control is rapid removal of merchantable infested trees coupled with direct control using insecticide spray on the bark of individual infested trees.
6. Economic Justification: Nineteen million board feet of southern pine makes up one-third of the total saw timber volume of Oak Ridge Reservation and is the dominant cover type on 17,000 acres. In addition, there are 4,200 acres of pine plantation 10 to 18 years old. The present value of merchantable pine is estimated at approximately one million dollars.

Left unarrested, most of the merchantable pine could be lost. Though more resistant, many of the plantations are in danger of being attacked by the beetle. Future value of plantations alone is estimated in excess of two million dollars at maturity. Several ecology study areas have also been severely attacked, and in certain instances research projects have been destroyed or damaged.

7. Operations Prior to Calendar Year 1965: None
8. Program for Calendar Year 1965:
 - a. Chemical Used: Benzene Hexachloride (BHC), emulsifiable oil concentrate, 11 per cent (1 lb.) of the gamma isomer.
 - b. Rates Per Unit Area Treated: One-half per cent formulation of 11 per cent BHC and No. 2 diesel oil. One gallon

treated approximately 65 square feet of bark surface. A total of 150 gallons of 11 per cent BHC were used.

- c. Treatment Areas: A total of 6,000 trees were cut and sprayed on 120 spots randomly located on the reservation. Spot area ranged from single trees to 3 acres. An aggregate of approximately 60 acres were treated. The second phase of the control program in fall-winter of 1965 will involve the same number of trees and area.
- d. Crops and Water Areas Involved: None
- e. Methods of Application: Individual infested trees were felled, bucked, and the bark sprayed to point of run off with the BHC - diesel oil formulation. Hand sprayers and power sprayers with conical spray heads were used.
- f. Timing: Treating was done between March 12 and April 12, 1965. The project will be continued December 1965.
- g. Special Precautions Exercised. Contractor was required to provide protective clothing for his employees. Personnel stood up wind during spray operations and kept spray nozzles close to the treated surface to reduce wind drift.
- 9. Federal Departments of Agencies Involved: The Forest Service has extended aid under the Forest Pest Control Act of 1947. They have conducted surveys and biological assays of the infestation.
- 10. State and Local Governments Involved: None
- 11. Private Institutions Involved: None
- 12. Adverse Effects: None
- 13. Information Activities: AEC releases to local newspapers, and one small item in ORNL News.

ATTACHMENT II

1. Department: Plant Services
2. Program Title: Insect and Pest Control
3. Location: Oak Ridge National Laboratory
4. Objectives: To control social and economic insects and pests which annoy personnel and cause damage to property.
5. Technical or Scientific Basis for the Program: Control of insects and pests which might cause diseases within the Laboratory personnel and to prevent damage to property.
6. Economic Justification: To prevent serious and expensive damage to buildings, equipment, plants or injury to personnel.
7. Summary of Operations:

a. Chemicals Used;

Kel-San 51, containing,

Pyrethrins I & II	0.20%
Technical Piperonyl butoxide	1.0 %
Aliphatic Petroleum distillate	98.8 %

Location and Usage

Used as a dry fog for insect control in cafeteria and lunch rooms. Twenty gallons used in 1964, none in 1965.

Baygon, containing,

O-isopropoxyphenyl Methyl Carbamate	13.9 %
Inert	86.1 %

Location and Usage

Used as a dry fog for insect control in cafeteria and lunch rooms. Ten gallons used in 1964. Probable usage in 1965, 30 gallons.

Cygon, containing,

Dimethoate	43.5 %
Inert	56.5 %

Location and Usage

Fly control around garbage containers. Annual usage about 1 gallon.

Chlorodane, containing,

Technical chlorodane	72.5 %
Aliphatic petroleum hydrocarbons	17.5 %

Location and Usage

Used as a termite control around building foundations and sub-slab treatments using 1% solution applying 2 gallons per 5 linear feet or 2 gallons per 10 square feet. Annual usage of 15 to 20 gallons per year.

Real Kill, containing,

2-2 dichlorovinyl dimethyl phosphate	0.46 %
Dieldrin	0.50 %
Petroleum distillate	99.0 %

Location and Usage

Used as spray for ants, roaches, fruitflies, etc. in offices and labs. Usually insignificant quantities used such as a 4" band sprayed along baseboard where insects enter areas. Usage of approximately 10 gallons annually.

Air-Kem, containing,

Pyrethrins	0.30 %
Technical piperonyl butoxide	0.60 %
N-octyl bicycloheptane dicarboximide	1.00 %
Petroleum distillate	18.10 %
Inert	80.00 %

Location and Usage

Used for fly control in offices and labs. Aerosol spray cans of 14 oz. size used. Annual usage is about 100 cans.

Malathion, containing,

Malathion	50 %
Aromatic petroleum derivative	39 %
Inert	11 %

Location and Usage

Used as broad spectrum insecticide for plants, shrubs, trees, using a 2% solution in garden sprayers. Annual usage is about 2 gallons.

Kelsan, containing,

Technical cholorodane	2 %
Lindane	1 %
Petroleum distillate	97 %

Location and Usage

Used as ant, roach and termite control in normally unoccupied areas such as equipment storage areas and warehouses. Sprayed with garden sprayer at entrance points. Annual usage about 20 gallons.

Fluorokil, containing,

Fluroacetamide	97 %
Inert	3 %

Location and Usage

Grass seed is soaked in a solution of the rodenticide and placed in areas where mice are observed. Such seed are conspicuously labeled poison. About 1/2 lb. is used annually.

Clover and chickweed killer, containing,

2-(2,4,5 trichlorophenoxy) propionic acid	13.8%
Inert	86.2%

Location and Usage

Used as a chickweed killer on lawn areas with a garden sprayer. Annual usage amounts to about 4 gallons.

Esteron 245, containing,

2,4,5 trichlorophenoxy acetic acid	65.3%
Inert	34.7%

Location and Usage

Used as a selective herbicide to control honeysuckle and brush along security fences. Used in garden and power sprayers. Annual usage about 20 gallons.

8. Crops and Water Areas Involved: None
9. Methods of Application: Hand sprayers, power sprayers, foggers and aerosol dispensers.
10. Timing: As required when insects and pests are observed.
11. Special Precautions Taken: Full safety precautions as prescribed by the ORNL Industrial Hygiene Department, and manufacturers' recommendations are observed.

Purchasing and Central Employment
Insect and Weed Control

1. Purchasing and Central Employment
2. Maintenance of Charlotte and Cheyenne Halls
3. Townsite - Oak Ridge
4. Insect control and weed control
5. None
6. None
7. A. Kel-San 404 insecticide within buildings and Ester 44 on lawn.
B. Kel-San 404 - 2 ounces per 3000 cubic feet, Ester 44 - 1 gallon per acre.
C. Charlotte and Cheyenne Halls - Buildings and exteriors.
D. None
E. Kel-San 404 - Electrical insect fogger, Ester 44 - mechanized sprayer.
F. Kel-San 404 - Once a month or upon request, Ester 44 - twice yearly - Spring and Fall.
G. Kel-San 404 - Applied during nonworking hours, Ester 44 - applied only on windless days.
8. A - G
Same as previous year; no additional programs anticipated.
9. No
10. No
11. Yes

ORNL Credit Union
ORGDP Credit Union
Technical Societies Joint Council
Oak Ridge Camera Club
Ham Radio Operators Club
Oak Ridge Instrument Society
Recording for the Blind, Inc.
The National Secretaries Association
Cosmopolitan Club

12. None
13. None
14. None

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David R. Hamlin 1/31/96
Technical Information Officer Date
ORNL Site

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Y-12 Plant
Weed Control

1. Department: General Plant Maintenance
2. Program Title: Weed Control
3. Location: Y-12 Plant
4. Objectives: To control undesirable weeds, grasses, and brush which are detrimental to lawns, gravel areas, power lines, etc.
5. Technical or Scientific Basis for the Program: None
6. Economic Justification: Reduction in labor required for maintenance of the areas.
7. Summary of Operations:
 - a. Chemicals Used;

Ammate X

Location and Usage

Used as a spray to control weeds, grasses, and brush along railroad, under power lines, and in substations, one-half pound per gallon of water, two pounds per 100 square feet. Six thousand pounds was used in 1964.

Telvar W

Location and Usage

Used as a spray to control weeds and grasses in gravel areas where runoff cannot damage lawns, one pound per ten gallons of water, 50 pounds per acre. One thousand pounds was used in 1964.

Estron 44

Location and Usage

Used as a selective weed killer in lawns. Applied as a spray, one gallon per 100 gallons of water. Fifty gallons was used in 1964.

Chlorea

Location and Usage

Used in a dry, granular form to control weeds and grasses in gravel areas. None used in 1964. Seventy-two hundred

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pounds to be used in 1965. Applied by hand seeders at two pounds per 100 square feet.

b. Crops and Water Areas Involved: None

8. Program for 1965: Same as 1964, except for added use of Chlorea.
9. Methods of Application: Hand sprayers, power sprayers, and hand seeders.
10. Timing: Late fall and early spring, except for Estron 44 which is applied during growing season.
11. Special Precautions Taken: Manufacturers' recommendations are followed.
12. Adverse Effects: None
13. Information Activities: None
14. Miscellaneous: None

Y-12 Plant
Insect and Pest Control

1. Department: General Plant Maintenance
2. Program Title: Insect and Pest Control
3. Location: Y-12 Plant
4. Objectives: To control insects and pests which cause property damage and annoy or injure personnel.
5. Technical or Scientific Basis for the Program: Control of insects and pests which could cause diseases and to prevent property damage.
6. Economic Justification: To prevent serious damage to buildings and injury to personnel.
7. Summary of Operations:
 - a. Chemicals Used;

D-Con

Location and Usage

Used as an impregnated cracked grain in four ounce bait boxes to control rats and mice. These boxes are placed in buildings, near dumpsters, and around shrubbery where rats or mice are evident. Forty pounds was used in 1964.

Insecticide Powder, Containing

Pyrethrum	20.0%
Sodium Fluoride	75.0%
DDT	5.0%

Location and Usage

Used as a dry powder for insect control in the Cafeteria. Applied as a dust along cracks, crevices, baseboards, and around drains, one ounce per 100 linear feet. Forty-eight pounds was used in 1964.

Industrial Liquid, Containing

Chlordane	2.00%
Malathion	1.00%
Diozion50%
Lindane20%
Butoxide24%
Pyrethrum10%
Petroleum Distillate	95.96%

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Location and Usage

Used as a spray to control roaches, ants, spiders, water bugs, silver fish, flies, etc., in plant buildings. Applied along baseboards, cracks, drains, etc., one gallon per 1,000 linear feet. One hundred fifty gallons was used in 1964.

Insecticide, Containing

DDT	5.0%
Kerosene	70.0%
Aromatic Petroleum Derivative	20.0%
Inert	5.0%

Location and Usage

Used as a fog to control insects in dumpster pans, one gallon per 1,000 square feet. Twenty gallons was used in 1964.

Chlordane, 72.5%

Location and Usage

Used as a termite control in trenches around buildings and under slabs. Applied as a one percent solution in water at two gallons per five linear feet. Seventeen gallons was used in 1964.

Strychnine Sulphate

Location and Usage

Used as a poison in wheat grain to control pigeons, one ounce to eight pounds of grain. Grain is placed on high ledges. Eight ounces was used in 1964.

Korlan

Location and Usage

Used as a spray to control fleas in fall-out shelters. Ten gallons was used in 1964.

Sanitab

Location and Usage

Used to control bacteria and fungus in commodes, urinals, and showers. Dissolved in water. Sixty thousand tablets was used in 1964.

Roccal

Location and Usage

Used in mop water to control bacteria and fungus on laboratory floors, one-half ounce per two gallons of water. Fifty pounds was used in 1964.

Kelthane

Location and Usage

Used as a spray on shrubs and trees to control mites and ophites, one and one-half pints to 100 gallons of water. Six gallons was used in 1964.

Cygon

Location and Usage

Used as a spray on shrubs and trees to control bagworms and scale, one pint to 100 gallons of water. Six gallons was used in 1964.

Volck Oil

Location and Usage

Used as a spray for scale control on shrubs, one pint to three gallons of water. Six gallons was used in 1964.

- b. Crops and Water Areas Involved: None
8. Programs for 1965: Same as outlined above for 1964.
 9. Methods of Application: Hand sprayers, foggers, and dusters.
 10. Timing: As required when insects or pests are evident.
 11. Special Precautions Taken: Manufacturers' recommendations are observed.
 12. Adverse Effects: None
 13. Information Activities: None
 14. Miscellaneous: None

Oak Ridge National Laboratory
Southern Pine Beetle Control Project

1. Department: Health Physics Division, Radiation Ecology Section.
2. Program Title: Southern Pine Beetle Control Project.
3. Location: Infested areas randomly located on forested areas of Oak Ridge Reservation.
4. Objectives: To control an epidemic of the Southern Pine Beetle. (Dendroctanns frontalis).
5. Basis for the program: The Southern Pine Beetle is one of the most destructive forest insects. The beetle attacks and invariably kills the three species of southern yellow pine growing on the Reservation. Because of its great reproductive potential and attack pattern, it is a difficult insect to control. The only known control is rapid removal of merchantable infested trees coupled with direct control using insecticide spray on the bark of individual infested trees.
6. Economic Justification: Nineteen million board feet of southern pine makes up one-third of the total saw timber volume of Oak Ridge Reservation and is the dominant cover type on 17,000 acres. In addition, there are 4,200 acres of pine plantation 10 to 18 years old. The present value of merchantable pine is estimated at approximately one million dollars.

Left unarrested, most of the merchantable pine could be lost. Though more resistant, many of the plantations are in danger of being attacked by the beetle. Future value of plantations alone is estimated in excess of two million dollars at maturity. Several ecology study areas have also been severely attacked, and in certain instances research projects have been destroyed or damaged.
7. Operations Prior to Calendar Year 1965: None
8. Program for Calendar Year 1965:
 - a. Chemical Used: Benzene Hexachloride (BHC), emulsifiable oil concentrate, 11 per cent (1 lb.) of the gamma isomer.
 - b. Rates Per Unit Area Treated: One-half per cent formulation of 11 per cent BHC and No. 2 diesel oil. One gallon

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Technical Information Officer
ORNL Site

1/31/90
Date

treated approximately 65 square feet of bark surface. A total of 150 gallons of 11 per cent BHC were used.

- c. Treatment Areas: A total of 6,000 trees were cut and sprayed on 120 spots randomly located on the reservation. Spot area ranged from single trees to 3 acres. An aggregate of approximately 60 acres were treated. The second phase of the control program in fall-winter of 1965 will involve the same number of trees and area.
- d. Crops and Water Areas Involved: None
- e. Methods of Application: Individual infested trees were felled, bucked, and the bark sprayed to point of run off with the BHC - diesel oil formulation. Hand sprayers and power sprayers with conical spray heads were used.
- f. Timing: Treating was done between March 12 and April 12, 1965. The project will be continued December 1965.
- g. Special Precautions Exercised. Contractor was required to provide protective clothing for his employees. Personnel stood up wind during spray operations and kept spray nozzles close to the treated surface to reduce wind drift.
- 9. Federal Departments of Agencies Involved: The Forest Service has extended aid under the Forest Pest Control Act of 1947. They have conducted surveys and biological assays of the infestation.
- 10. State and Local Governments Involved: None
- 11. Private Institutions Involved: None
- 12. Adverse Effects: None
- 13. Information Activities: AEC releases to local newspapers, and one small item in ORNL News.

Oak Ridge National Laboratory
Insect and Pest Control

1. Department: Plant Services
2. Program Title: Insect and Pest Control
3. Location: Oak Ridge National Laboratory
4. Objectives: To control social and economic insects and pests which annoy personnel and cause damage to property.
5. Technical or Scientific Basis for the Program: Control of insects and pests which might cause diseases within the Laboratory personnel and to prevent damage to property.
6. Economic Justification: To prevent serious and expensive damage to buildings, equipment, plants or injury to personnel.
7. Summary of Operations:

a. Chemicals Used;

Kel-San 51, containing,

Pyrethrins I & II	0.20%
Technical Piperonyl butoxide	1.0 %
Aliphatic Petroleum distillate	98.8 %

Location and Usage

Used as a dry fog for insect control in cafeteria and lunch rooms. Twenty gallons used in 1964, none in 1965.

Baygon, containing,

O-isopropoxyphenyl Methyl Carbamate	13.9 %
Inert	86.1 %

Location and Usage

Used as a dry fog for insect control in cafeteria and lunch rooms. Ten gallons used in 1964. Probable usage in 1965, 30 gallons.

Cygon, containing,

Dimethoate	43.5 %
Inert	56.5 %

Location and Usage

Fly control around garbage containers. Annual usage about 1 gallon.

Chlorodane, containing,

Technical chlorodane	72.5 %
Aliphatic petroleum hydrocarbons	17.5 %

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Location and Usage

Used as a termite control around building foundations and sub-slab treatments using 1% solution applying 2 gallons per 5 linear feet or 2 gallons per 10 square feet. Annual usage of 15 to 20 gallons per year.

Real Kill, containing,

2-2 dichlorovinyl dimethyl phosphate	0.46 %
Dieldrin	0.50 %
Petroleum distillate	99.0 %

Location and Usage

Used as spray for ants, roaches, fruitflies, etc. in offices and labs. Usually insignificant quantities used such as a 4" band sprayed along baseboard where insects enter areas. Usage of approximately 10 gallons annually.

Air-Kem, containing,

Pyrethrins	0.30 %
Technical piperonyl butoxide	0.60 %
N-octyl bicycloheptane dicarboximide	1.00 %
Petroleum distillate	18.10 %
Inert	80.00 %

Location and Usage

Used for fly control in offices and labs. Aerosol spray cans of 14 oz. size used. Annual usage is about 100 cans.

Malathion, containing,

Malathion	50 %
Aromatic petroleum derivative	39 %
Inert	11 %

Location and Usage

Used as broad spectrum insecticide for plants, shrubs, trees, using a 2% solution in garden sprayers. Annual usage is about 2 gallons.

Kelsan, containing,

Technical chlorodane	2 %
Lindane	1 %
Petroleum distillate	97 %

Location and Usage

Used as ant, roach and termite control in normally unoccupied areas such as equipment storage areas and warehouses. Sprayed with garden sprayer at entrance points. Annual usage about 20 gallons.

Fluorokil, containing,

Fluroacetamide	97 %
Inert	3 %

Location and Usage

Grass seed is soaked in a solution of the rodenticide and placed in areas where mice are observed. Such seed are conspicuously labeled poison. About 1/2 lb. is used annually.

Clover and chickweed killer, containing,

2-(2,4,5 trichlorophenoxy) propionic acid	13.8%
Inert	86.2%

Location and Usage

Used as a chickweed killer on lawn areas with a garden sprayer. Annual usage amounts to about 4 gallons.

Esteron 245, containing,

2,4,5 trichlorophenoxy acetic acid	65.3%
Inert	34.7%

Location and Usage

Used as a selective herbicide to control honeysuckle and brush along security fences. Used in garden and power sprayers. Annual usage about 20 gallons.

8. Crops and Water Areas Involved: None
9. Methods of Application: Hand sprayers, power sprayers, foggers and aerosol dispensers.
10. Timing: As required when insects and pests are observed.
11. Special Precautions Taken: Full safety precautions as prescribed by the ORNL Industrial Hygiene Department, and manufacturers' recommendations are observed.

Oak Ridge Gaseous Diffusion Plant

1. Department: Custodial Services
2. Program Title: Insect and Pest Control
3. Location: ORGDP
4. Objectives: To control social and economic insects and pests which annoy personnel and cause damage to property.
5. Technical or Scientific Basis for the Program: Control of insects and pests which might cause diseases within the Plant personnel and to prevent damage to property.
6. Economic Justification: To prevent serious and expensive damage to buildings, equipment, plants or injury to personnel.
7. Summary of Operations:
 - a. Chemicals Used:

Insecticide, Industrial, containing two per cent Chlordane, 1/2 of one per cent Diazinon by volume with two gallons twenty-to-one Pyrenone and two gallons twenty-to-one Pyrethrum per drum (55 gal. drum).

Location and Usage:
Used in change houses, cafeteria, canteens, rest rooms, and warehouses as fog spray for control of roaches, waterbugs, spiders, and other crawling insects. Annual usage 55 gallons.

Insecticide, Liquid, containing .25 per cent Pyrethins, 1.25 per cent Tech. Piperonyl Butoxide, 1 per cent Petroleum Distillate, 97.5 per cent inert ingredients. 12 oz. can, aerosol.

Location and Usage:
Used in offices for control of flies and ants. Annual usage 180 cans.

Insecticide, Powder, containing 5 per cent DDT, 75 per cent Sodium Fluoride, (95 per cent grade), 20 per cent minimum Pyrethrum (containing .6 per cent min. Pyrethrins), 85 per cent of material to pass NC. 200 sieve.

Location and Usage:
Powder form for control of roaches and crawling insects in all areas and offices. Annual usage 30 pounds.

D-Con
Set up on six months program for control of rodents.

Location and Usage:
Used any place rodents are observed. Annual usage 30 pounds.
8. Crops and Water Areas Involved: None
9. Methods of Application: Hand sprayers, foggers and aerosol dispensers.
10. Timing: As required when insects and pests are observed.
11. Special Precautions Taken: Full safety precautions as prescribed by the Industrial Hygiene Department, and manufacturers' recommendations are observed.
12. We are unaware of any adverse effects arising from the use of the above chemicals.

4-28-65

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David R. Hamlin 1/31/96
Technical Information Officer Date
ORNL Site

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**UNION
CARBIDE**

UNION CARBIDE CORPORATION

NUCLEAR DIVISION

P. O. BOX P, OAK RIDGE, TENNESSEE 37831

CR

April 30, 1965

Copy Fwd. by ^{WSP}MER; 5-4-65
TALincoln

United States Atomic Energy Commission
Post Office Box E
Oak Ridge, Tennessee

Attention: Mr. S. R. Sapirio, Manager
Oak Ridge Operations

Gentlemen:

Information on Use of Pest Control
Agents - Pesticides, Fungicides, Herbicides

Provided herewith, in response to your request of April 9, are summaries of the pest control agents used in the Oak Ridge and Paducah facilities. Usage figures are based upon Calendar Year 1964, and no significant changes are anticipated for the coming year, except in the Southern Pine Beetle Control Project, which is specifically noted.

Our usage of pesticides, fungicides, and herbicides has been in accordance with manufacturers' recommendations, using standard commercial equipment. We know of no problems arising through use of these materials.

Very truly yours,

C. E. LARSON

C. E. Larson, President

CEL:KMB:bms

Attachments - 7

ORGD - Insect and Pest Control

ORNL - Insect and Pest Control

Southern Pine Beetle Control Program

Y-12 - Insect and Pest Control

Weed Control

Paducah - Insect and Pest Control

Purchasing and Central Employment - Insect and Weed Control

cc: Mr. C. E. Center (3)

Dr. H. G. MacPherson

Mr. K. W. Bahler

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to the public by

Dandr Hamlin 1/31/96
Technical Information Officer
ORNL Site

ChemRisk Document No. 2651 (14 of 14)



IN REPLY REFER TO:
ORB:CSS

UNITED STATES
ATOMIC ENERGY COMMISSION

C. E. Center
H. G. MacPherson
J. A. Elkins
K. W. Bahler
(CEL)

R. F. Hibbs
R. G. Jordan
R. A. Winkel (w/o encls.)
Oak Ridge, Tennessee
December 16, 1965

Please reply directly to ORO
Res. & Dev. as indicated in
last Par. of Mr. Sapirie's ltr.-
Cy. to C.E. Larson

Union Carbide Corporation
Nuclear Division
Post Office Box P
Oak Ridge, Tennessee

Attention: Dr. C. E. Larson, President

Subject: HEADQUARTERS' REQUEST FOR INFORMATION ON USE OF PEST CONTROL
AGENTS, PESTICIDES, FUNGICIDES, ETC.

Gentlemen:

In our letter to you dated April 9, 1965, subject as above, we requested information regarding chemicals, sprays, etc., used in pest control programs at our Union Carbide installations. This information was for the Federal Committee on Pest Control and was intended to cover programs operative and planned in Calendar Year 1965.

Headquarters has informed us that reporting to the FCPC will be required each Calendar Year. To that end it is requested that you submit an updating report to cover pesticide programs planned for Calendar Year 1966 as soon as possible, following a format outlined in an enclosed sheet marked "Example and Instructions." Although Headquarters (Division of Operational Safety) has requested that replies reach ORO in time to be received by Germantown on January 3, 1966, we fully realize that the time interval is insufficient and we are requesting some relaxation of the deadline.

In addition to the "Example and Instructions" sheet, we are enclosing (1) a copy of the entire AEC Survey for Federal Committee on Pest Control; (2) comments and replies related to the Survey presentation before the FCPC; (3) a release dealing with the FCPC; (4) a statement of functions of the FCPC; and (5) Agriculture Handbook 290 on insecticides. For your use at Y-12, ORNL, and ORGDP, three sets of these five items are enclosed. A set is being provided our Paducah Area Office for the UC Paducah Plant.

As a result of the 1965 review, the FCPC asks that your 1966 survey include:

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to the public by:

David R. Hamm 1/31/96
Technical Information Officer
ORNL Site

ChemRisk Document No. 2651 (2 of 14)

Dr. C. E. Larson

- 2 -

December 16, 1965


1. Specific projects such as short-term control efforts against pest outbreaks.
2. Specific programs such as continuing pest control efforts against distinct pest or group of pests.
3. Housekeeping-type programs that are normally conducted within the immediate confines of buildings and adjacent premises.

The information should be provided in a manner that will allow the Division of Operational Safety to compile it in accord with the enclosed 1965 Survey Report and the example sheet, additions and deletions being fitted into the basic format.

Also, it is requested that letter-size maps should be included to show the relationship of the application points to AEC-owned buildings, sites, or communities, as for example, the maps used in the semiannual environmental monitoring reports. Three good black and white copies of each item should be sent in with your report.

If you have no objection, each plant may send its individual report directly to our Research and Development Division, in order to save on time.

Very truly yours,


S. R. Sapirie
Manager
Oak Ridge Operations

Enclosures:

1. Example Sheet
2. AEC Survey
3. Comments
4. Release
5. Statement
6. Handbook 290

Copies Fwd. by MER, 12-23-65
TALincoln, w/all encls. - To prepare ans.
HESegren
KZMorgan
SIAuerbach

CC: R. C. Armstrong
C. A. Keller
N. A. Shearon
J. W. Ruch
E. E. Stokely
H. M. Roth

OAK RIDGE NATIONAL LABORATORY

OPERATED BY

UNION CARBIDE CORPORATION

NUCLEAR DIVISION



POST OFFICE BOX X

OAK RIDGE, TENNESSEE 37831

December 30, 1965

Dr. C. S. Shoup, Chief
Biology Branch
Research and Development
Oak Ridge Operations Office
Oak Ridge, Tennessee

Dear Dr. Shoup:

Per Mr. Saporie's letter of December 16, 1965, attached is the information requested regarding the pest control program for the Oak Ridge National Laboratory during the calendar year of 1966.

Due to the shortness of time, I was unable to obtain letter-size maps as requested and have, instead, enclosed the only maps available. Arrangements are being made to secure some of these maps per your request and will be forwarded as soon as they are available.

Please advise me if you have any comments or questions regarding the attached information.

Sincerely,

A handwritten signature in dark ink, appearing to read "T. A. Lincoln".

T. A. Lincoln, M.D.
Director, Health Division
Oak Ridge National Laboratory

TAL/NEB/mlh

cc: N. E. Bolton
F. R. Bruce
C. E. Larson
H. G. MacPherson
M. E. Ramsey

This document has been approved for release
to the public by:

A handwritten signature in dark ink, appearing to read "David R. Harman".
Technical Information Officer
Date 1/31/96
Oak Ridge

1966 PEST CONTROL SURVEY

December 30, 1965

DEPARTMENT: OAK RIDGE NATIONAL LABORATORY
Union Carbide Corporation

LOCATION: Oak Ridge, Roane County, Tennessee

(1) PROGRAM: See individual control material list

(2) OBJECTIVE: To control social and economic insects and pests which annoy or endanger personnel and cause damage to property. Herbicides are used to control unwanted weed and plant growth in utility areas.

NOTE: Manufacturers' recommendations, as well as all recommendations of the Industrial Hygiene Department, are followed for each specific chemical utilized at the Laboratory.

NOTE: Questions 3 through 10 will be answered specifically for each material utilized at the Laboratory.

(3) CHEMICALS USED:

Kel-San-51

Pyrethrins I & II - - - - -	0.20 %
Technical Piperonyl Butoxide - - - - -	1.00 %
Aliphatic Petroleum Distillate - - - - -	98.80 %

(d) Season's expected usage: 50 gallons

(e) Rate of application: 1/2 gallon per 180,000 cu. ft.

(4) METHOD OF APPLICATION:

Fog - using Dyna-Fog-70, gasoline engine powered hand fogger.

(5) OBJECTIVE AND TREATMENT AREAS:

Indoors - used as fly control in cafeteria and lunch rooms, also for control of wasps, etc., in areas where hand sprayers are impractical such as air ducts.

Outside - Recreation park picnic area for fly control. Areas are treated at times when no personnel are present.

(6) CROPS: None

(7) WATER AREAS: None (Recreation park is lake side of Melton Hill Reservoir)

(8) PRECAUTIONS:

- (a) Respirator masks worn
- (b) Rubber gloves worn
- (c) Cap worn
- (d) Long-sleeved shirts worn
- (e) Shower after work

(9) TIME OF TREATMENT: Weekly in summer months or as required.

(10) OTHER AGENCIES INVOLVED: None

(3) CHEMICALS USED:

Baygon

O-isopropoxyphenol Methyl Carbamate - - - 13.9 %
Inert - - - - - 86.1 %

(d) Season's expected usage: 20 gallons

(e) Rate of application: 2 oz/100 lineal ft. at 2-week intervals as base board spray to control cockroaches and water bugs.

(4) METHOD OF APPLICATION: Hand spray

(5) OBJECTIVE AND TREATMENT AREAS: Cafeteria, office buildings, warehouses and shops. Areas are sprayed when personnel are not present.

(6) CROPS: None

(7) WATER AREAS: None

(8) PRECAUTIONS:

(a) Workers wear gloves in addition to regular work clothes.

(b) Wash hands thoroughly after work periods.

(9) TIME OF TREATMENT: Every two weeks or less frequently in summer months.

(10) OTHER AGENCIES INVOLVED: None

(3) CHEMICALS USED:

Chlorodane

Technical Chlorodane - - - - - 72.5 %
Aliphatic Petroleum Hydrocarbons - - - - 17.5 %

(d) Season's expected usage: 50 gallons

(e) Rate of application: 1 % solution used at rate of
2 gal/5 lineal ft. or 2 gal per 10 sq. ft.

(4) METHOD OF APPLICATION: Mobile pressure sprayer to inject material
into soil as sub-slab treatment for termite control.
Hand sprayer to termite treat around foundations.

(5) OBJECTIVE AND TREATMENT AREAS: Buildings to be treated are of
frame construction or concrete slab in a shale and clay
type soil on hilly terrain.

(6) CROPS: None

(7) WATER AREAS: None

(8) PRECAUTIONS:

- (a) Workers completely protected by work clothes, cap,
gloves and assault type mask.
- (b) Are not permitted to eat or smoke while working,
and must shower after each work period.
- (c) All work is done while building occupants are
absent.

(9) TIME OF TREATMENT: One application every 10 years.

(10) OTHER AGENCIES INVOLVED: None

(3) CHEMICALS USED:

Air-Kem - (Trade Name)

Pyrethrins - - - - -	0.30 %
Technical Piperonyl Butoxide - - - - -	0.60 %
N-octyl-bicycloheptane Dicarboximide	1.00 %
Petroleum Distillate - - - - -	18.10 %
Inert - - - - -	80.00 %

(d) Season's expected use: 150 16 oz. cans.

(e) Rate of application: See Method of Application

(f) Area to be treated: See Method of Application

(4) METHOD OF APPLICATION: Aerosol pressure spray can used to spray offices and labs for fly and wasp control as needed.

(5) OBJECTIVE AND TREATMENT AREAS: See above

(6) CROPS: None

(7) WATER AREAS: None

(8) PRECAUTIONS:

(a) Stored at room temperature.

(b) Empty cans buried.

(9) TIME OF TREATMENT: As required.

(10) OTHER AGENCIES INVOLVED: None

(3) CHEMICALS USED:

Malathion

Malathion - - - - -	50 %
Aromatic Petroleum Distillate - - - - -	39 %
Inert - - - - -	11 %

(d) Season's expected usage: 2 gallons

(e) Rate of application: As required

(f) Area to be treated: As required

(4) METHOD OF APPLICATION: Hand sprayer of garden type to apply material as a broad spectrum insecticide to trees, shrubs, flowers, etc., in landscape maintenance program.

(5) OBJECTIVE AND TREATMENT AREAS: Hilly terrain

(6) CROPS: None

(7) WATER AREAS: None

(8) PRECAUTIONS:

(a) As recommended

(9) TIME OF TREATMENT: As required

(10) OTHER AGENCIES INVOLVED: None

(3) CHEMICALS USED:

Fluorokil - 100

Fluoroacetamide - - - - -	97.0 %
Inert - - - - -	3.0 %

(d) Season's expected usage: 4 oz.

(e) Rate of application: See Method of Application

(f) Area to be treated: See Method of Application

(4) METHOD OF APPLICATION: A 6% solution is mixed and sufficient grass seed used to absorb all liquid. About 1 oz. of seed is placed in shallow container in areas (offices, labs, warehouses, etc.) where mice or rats are observed.

(5) OBJECTIVE AND TREATMENT AREAS: See above

(6) CROPS: None

(7) WATER AREAS: None

(8) PRECAUTIONS:

- (a) All manufacturers' recommendations are observed.
- (b) All containers plainly labeled "Poison" in large, red letters.

(9) TIME OF TREATMENT: As required

(10) OTHER AGENCIES INVOLVED: None

(3) CHEMICALS USED:

Esteron 245 (2,4,5-T)

2-4,5 Trichlorophenoxy Acetic Acid - - -	65.3 %
Inert - - - - -	34.7 %

(d) Amount expected to be used: 20 gallons

(e) Rate of application: 10 gal/1/2 % solution/A./yr.

(f) Area to be treated: About 50 acres

(4) METHOD OF APPLICATION: Hand and mobile pressure sprayers. Foliage is thoroughly wet.

(5) OBJECTIVE AND TREATMENT AREAS: Hilly terrain, along security fences and power line rights of way.

(6) CROPS: None

(7) WATER AREAS: None

(8) PRECAUTIONS:

(a) Spraying done on days of little or no wind.

(9) TIME OF TREATMENT: Early summer, annually.

(10) OTHER AGENCIES INVOLVED: None

- (1) PROGRAM: Algae and slime control in cooling tower water.
- (2) OBJECTIVE: To prevent the cooling tower from deteriorating due to fungus growth. To maintain an even heat transfer rate within the equipment heat exchangers.
- (3) PESTICIDE USED:
 - (a) Common Name: Non-oxidizing Biocide
 - (b) Chemical Name: Sodium Pentachlorophenate
 - (c) Trade Name: Betz Formula F-14, Hall H-212 ORH-607, Nalco 21S
 - (d) Amount Applied for Season: Approximately 500 gallons annually
 - (e) Rate of Application: 25 gallons weekly
 - (f) Volume to be Treated: 171,000 gallon cooling system
- (4) METHOD OF APPLICATION: The chemical is applied by hand dumping to the basin of the cooling tower twice each week to a concentration of 200 ppm. There is no blowdown during an 8-hour period immediately after application.
- (5) DESCRIPTION OF TREATMENT AREA: Cooling tower is located adjacent to plant buildings.
- (6) CROPS: None
- (7) WATER AREAS: Clinch River (Watts Bar Lake)
- (8) PRECAUTIONS:
 - (a) Face mask
 - (b) Rubber gloves
 - (c) Face shield
- (9) TIME OF TREATMENT: Once each week during spring, summer and fall seasons.
- (10) OTHER AGENCIES OR INTERESTS INVOLVED: TVA

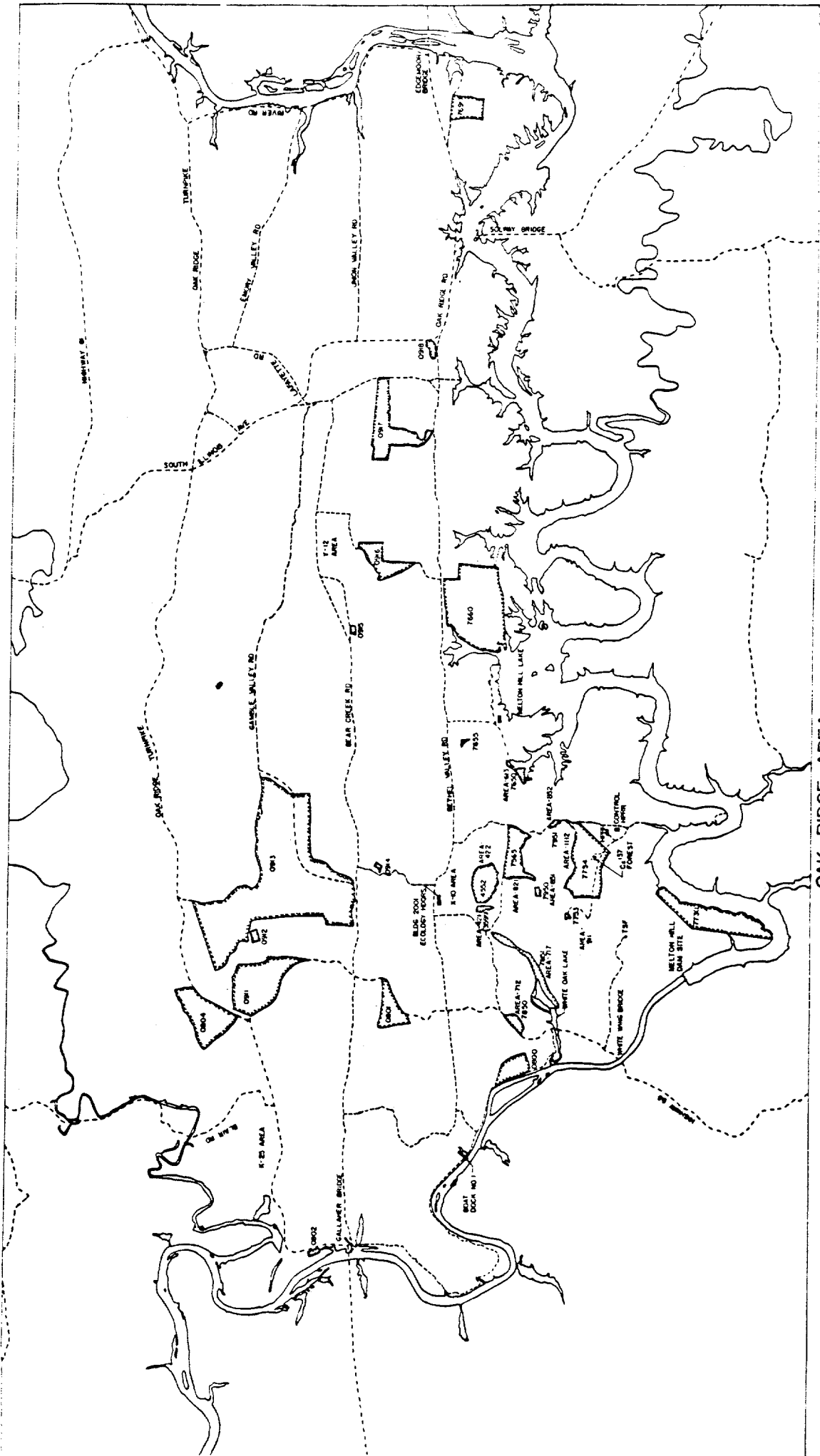
- (1) PROGRAM: Southern Pine Beetle Control Project.
- (2) LOCATION: Infested areas randomly located on forested areas of Oak Ridge Reservation. (See Map # 2)
- (3) OBJECTIVES: To control an epidemic of the Southern Pine Beetle (Dendroctonus frontalis).
- (4) BASIS FOR THE PROGRAM: The Southern Pine Beetle is one of the most destructive forest insects. The beetle attacks and invariably kills the three species of southern yellow pine growing on the Reservation. Because of its great reproductive potential and attack pattern, it is a difficult insect to control. The only known control is rapid removal of merchantable infested trees coupled with direct control using insecticide spray on the bark of individual infested trees.
- (5) ECONOMIC JUSTIFICATION: Nineteen million board feet of southern pine makes up one-third of the total saw timber volume of Oak Ridge Reservation and is the dominant cover type on 17,000 acres. In addition, there are 4,200 acres of pine plantation 10 to 18 years old. The present value of merchantable pine is estimated at approximately one million dollars.

Left unarrested, most of the merchantable pine could be lost. Though more resistant, many of the plantations are in danger of being attacked by the beetle. Future value of plantations alone is estimated in excess of two million dollars at maturity. Several ecology study areas have also been severely attacked, and in certain instances research projects have been destroyed or damaged.
- (6) OPERATIONS PRIOR TO CALENDAR YEAR 1966: A total of 6,000 trees was cut and sprayed with a one-half percent formulation of Benzene Hexachloride gamma isomer. A total of 150 gallons of 11 percent BHC was used on the operation. An aggregate of approximately 60 acres was affected. Treatment was conducted between March 12, and April 12, 1965.
- (7) PROGRAM FOR CALENDAR YEAR 1966:
 - (a) Chemical Used: Benzene Hexachloride (BHC),

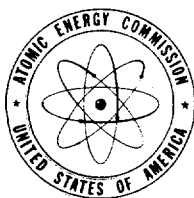
emulsifiable oil concentrate, 11 percent (1 lb.) of the gamma isomer.

- (b) Rates Per Unit Area Treated: One-half percent formulation of 11 percent BHC and No. 2 diesel oil. One gallon treated approximately 65 square feet of bark surface. We estimate that a total of 200 gallons of 11 percent BHC will be used.
 - (c) Treatment Areas: An estimated 8,000 trees will be cut and sprayed during the calendar year. Spot area will range from single trees to 5 acres. We anticipate that 80 to 100 acres will be treated in this manner at perhaps 150 different locations on the Reservation.
 - (d) Crops and Water Areas Involved: None
 - (e) Methods of Application: Individual infested trees will be felled, bucked, and the bark sprayed to point of run-off with the BHC - diesel oil formulation. Hand sprayers and power sprayers with conical spray heads will be used.
 - (f) Timing: Control operations will be conducted between February and May 1966.
 - (g) Special Precautions Exercised: Contractors are required to provide protective clothing for their employees. Personnel stand up wind during spray operations and keep spray nozzles close to the treated surface to reduce wind drift.
- (8) FEDERAL DEPARTMENTS OF AGENCIES INVOLVED: The Forest Service has extended aid under the Forest Pest Control Act of 1947. They have conducted surveys and biological assays of the infestation.
- (9) STATE AND LOCAL GOVERNMENTS INVOLVED: None
- (10) PRIVATE INSTITUTIONS INVOLVED: None

MAP # 2



OAK RIDGE AREA OAK RIDGE, TENNESSEE



IN REPLY REFER TO:

ORB:CSS

UNITED STATES
ATOMIC ENERGY COMMISSION

C. E. Center
✓ H. G. MacPherson - 1 w/enc.
J. A. Elkins - 1 w/o enc.
K. W. Bahler - 1 w/o enc.
(CEL)

CR R. F. Hibbs 1 w/enc.
R. G. Jordan 1 w/enc.
R. A. Winkel 1 w/enc.

Oak Ridge, Tennessee 37830
March 17, 1966

Please refer to your copy
of letter from Mr. Sapirie
to Dr. Larson dated
12-16-65.

Union Carbide Corporation
Nuclear Division
Post Office Box P
Oak Ridge, Tennessee

(CEC)
Copy Fwd. by MER, 3-23-66
TALincoln, w/encl.

Attention: Dr. C. E. Larson, President

Subject: HEADQUARTERS' REQUEST FOR INFORMATION ON USE OF PEST
CONTROL AGENTS, PESTICIDES, FUNGICIDES, ETC.

Gentlemen:

Reference is made to our letter dated December 16, 1965, on the
above subject, requesting updated information on the Union Carbide
four-plant program for use of pesticides during 1966.

The information obtained and forwarded to the Division of Operational
Safety, Headquarters, has been gathered with that from other AEC sites
and issued as a report entitled "1966 - AEC Survey for Federal Com-
mittee on Pest Control." Four copies of this report are enclosed, in
order that the report may be made available to each of your reporting
sites.

It is likely that a similar updating request will be issued next
fall for information on the proposed 1967 campaign.

We appreciate your cooperation in this effort.

Very truly yours,

S. R. Sapirie
S. R. Sapirie
Manager
Oak Ridge Operations

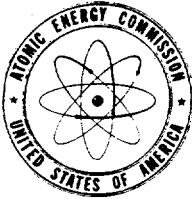
Enclosure:
Report (4)

CC: R. C. Armstrong
G. A. Keller
N. A. Shearon
J. W. Ruch
E. E. Stokely
W M Doh

This document has been approved for release
to the public by:

David R. Hamlin 11/31/96
Technical Information Officer
ORNL Site

ChemRisk Document No. 2651 (4 of 14)



UNITED STATES
ATOMIC ENERGY COMMISSION

cy: C. E. Center, W. enc.
✓ H. G. MacPherson "
J. A. Elkins "
K. W. Bahler "
(CEL)
R. F. Hibbs "
R. G. Jordan "
R. A. Winkel "
(CEC)

IN REPLY REFER TO:

ORB:CSS

Copy Fwd. by MER, 5-27-66
TALincoln - To prepare reply

Oak Ridge, Tennessee
May 23, 1966

Please reply separately,
but forward a copy of each
installation answer to
K. W. Bahler.

5/25/66

Union Carbide Corporation
Nuclear Division
Post Office Box P
Oak Ridge, Tennessee

Attention: Dr. C. E. Larson, President

Subject: INFORMATION ON PLANNED USE OF PEST CONTROL AGENTS, PESTI-
CIDES, FUNGICIDES, HERBICIDES, IN 1966

Gentlemen:

Reference is made to our letter of December 16, 1965, subject as above, requesting information from AEC Union Carbide installations on their 1966 pest control campaigns, and our letter to you on March 17, 1966, providing a report entitled "1966 - AEC Survey for Federal Committee on Pest Control" which incorporates Union Carbide replies from ORNL, Y-12, ORGDP and Paducah.

These reports for 1966 from all AEC installations have been reviewed by the Federal Committee on Pest Control. In many instances the Committee has offered suggestions, corrections, or implied questions on certain stated uses, and also has offered information to update and modernize uses in order to bring them into more secure health protection criteria.

We are enclosing four copies of statements made by the Committee on the Union Carbide sections of the 1966 report which we sent to you on March 17. Each section of the Committee's remarks are referred to the page number and the Union Carbide installation involved. It will be very helpful to us if you will provide us with your comments on these statements and on your proposed action before the end of May, since our Division of Operational Safety at Headquarters must again appear before the Committee.

Your cooperation is appreciated.

Very truly yours,

E. R. Saperie

Enclosure:
Committee Comments, FCPC (4)

CC: R. C. Armstrong
C. A. Keller
E. E. Stokely
H. M. Roth

S. R. Saperie
Manager
Oak Ridge Operations

This document has been approved for release
to the public by:

David R. Hamlin
Technical Information Officer
ORNL Site

11/31/96
Date

ChemRisk Document No. 2651 (5 of 14)

STATEMENTS OF THE FEDERAL COMMITTEE ON PEST CONTROL.

- M-32. ORGDP. Chemical name changed to trichlorobenzoic and trade name changed to trichlorobenzoic.
- M-34. ORGDP. We are assuming that only one product is referred to on this page (a mixture of DDT, sodium fluoride, and pyrethrum). This would be a dry material, and would not be manually sprayed as indicated. The pyrethrum content is not clear.
- M-37. ORNL. The Baygon concentrate is presumably to be diluted before use. An acceptable dilution would be 1/2 pint of the product in 1 gallon of water.
- M-43. ORNL. The percentage of sodium pentachloropentate in each gallon should be given. The dosage of 25 gallons per 171,000 gallons would not give 200 ppm. of product. The application is given as both "twice each week" and "once each week". What is it? The ppm. of active ingredient is more pertinent than ppm. of product.
- M-47. Y-12. Although effective against mites, dicofol (Kelthane) is not considered a good aphicide. Suggest treating aphids with malathion 57% EC at the rate of 1 qt. per 100 gallons. Kelthane is not registered for aphid control. We would not expect it to be effective.
- M-52. Y-12. The program "Control of fungus and bacteria" is too indefinite. A more specific intent such as "control of the growth of fungi and bacteria"; or "Reduction of XXX"; or "Disinfection against XXX" would be more meaningful to us. The objective "Sanitation" connotes "cleanness" to us, and a more specific objective is needed for evaluation of the program. Our experience with the active ingredient (BTC1100) indicates that its antifungal properties, at the concentration listed, are highly questionable. Probably the most serious omission from the program outlined is the method by which the efficacy of the treatment is to be measured; i. e., what criteria will be employed to determine whether or not the objective has been attained?
- M-53. Y-12. VIII. The relationship between the "PROGRAM" and the "OBJECTIVE" is highly questionable. It would be quite difficult to prove that the program ("Control of bacteria and fungus on animal laboratory floors") would provide, or even contribute to the objective ("Prevention of disease in laboratory animals"). The basis for drawing conclusions from this study should be outlined. The most we would expect from the program outlined would be a possible reduction in the danger of cross-infection among laboratory animals; the measurement of which would be quite difficult.

M-59. Y-12. The dosage of 2,4-D per acre is excessive for a single
M-60. application to lawns. The rate should be cut in half.

M-61. Y-12. Common name changed from Ammonium Sulfate to AMS.

M-68. PADUCAH.

There is reference to a 2% chlorodane surface spray for termite control. This would probably kill swarming termites, but would not give termite control. Even the killing of swarming termites would probably require too widespread use of chlorodane.

M-92. TOWNSITE.

The active ingredient in Esteron 44 should be stated as the chemical. The pounds of parent acid per acre should be given as the rate. The rate should be cut in half.

Enclosure # 1.

M-43 ORNL and ORGDP.

Sodium pentachlorophenate is applied weekly to the basin of the cooling towers. The Clinch River is listed (ORNL) as the water area involved. Neither sodium pentachlorophenate nor pentachlorophenol are registered for use in water areas and a question as to possible contamination of the river water may be in order.

The use of this preservative is mentioned for several additional tower facilities of the Oak Ridge Office, but there is no indication of any water areas being involved. We would have expected the end use of some stream or river and perhaps a question on this score could be raised.



UNITED STATES
ATOMIC ENERGY COMMISSION

IN REPLY REFER TO:

ORB:CSS

Oak Ridge, Tennessee

JUN 13 1966

Copies Fwd. by MER, 6-16-66
NEBolton
TALincoln

Union Carbide Corporation
Nuclear Division
Post Office Box X
Oak Ridge, Tennessee

Attention: Dr. A. M. Weinberg, Director
Oak Ridge National Laboratory

Subject: STATEMENTS OF FEDERAL COMMITTEE ON PEST CONTROL

Gentlemen:

Reference is made to your letter dated May 31, 1966, subject as above, forwarding comments on statements made by the FCPC.

We are pleased that you are sampling in the Clinch River to determine if there is a release of detectable amounts of the fungicides Sodium Pentachlorophenate or Sodium Pentachlorophenol. From the view of the relations we are going to have to maintain with the FCPC, this action will be very helpful. Since this Committee will most certainly raise some question regarding detection further downstream, we request the sampling be extended by perhaps one additional sampling station on the Clinch below the confluence of Poplar Creek. Needless to say, we shall look forward to the results from these stream examinations.

Your cooperation in this matter is very much appreciated.

Very truly yours,

Richard B. Martin ACTING

Herman M. Roth
Director
Research and Development Division

CC: C. E. Larson, UCC-ND
R. C. Armstrong
C. A. Keller

This document has been approved for release
to the public by:

David L. Hamlin 1/31/96
Technical Information Officer
ORNL Site

ChemRisk Document No. 2651 (6 of 14)



UNION CARBIDE CORPORATION
NUCLEAR DIVISION

P. O. BOX Y, OAK RIDGE, TENNESSEE 37830

June 1, 1966

United States Atomic Energy Commission
Post Office Box E
Oak Ridge, Tennessee

Copy Fwd. by MER, 6-10-66
TALincoln

Attention: Mr. C. A. Keller

Gentlemen:

Information on Planned Use of Pest Control Agents,
Pesticides, Fungicides, Herbicides, in 1966

Reference is made to the statements made by the Federal Committee on Pest Control as transmitted by letter, S. R. Sapirie to C. E. Larson, May 23, 1966. The attachment summarizes our comments concerning these remarks.

In view of the fact that an increased number of water cooling towers will be put into service in this calendar year, an addendum is also attached which describes the treatment of these towers with sodium pentachlorophenate, a fungicide.

These remarks have been discussed with Dr. C. S. Shoup, as requested, in order to expedite action.

Very truly yours,

R. F. Hibbs
R. F. Hibbs

Y-12 Plant Superintendent

JDM:DAJ:mw

Attachments

Distribution: Mr. C. A. Keller (2)
Dr. C. E. Larson
Mr. C. E. Center
Dr. H. G. MacPherson ✓
Mr. R. G. Jordan
Mr. K. W. Bahler
Mr. J. A. Elkins
Mr. R. A. Winkel
Mr. J. W. Ebert/Mr. D. A. Jennings
Mr. D. H. Rader
Mr. G. A. Strasser/Mr. J. D. McLendon

This document has been approved for release
to the public by:

David R. Haman 1/31/96
Technical Information Officer Date
ORNL Site

Comments on Statements of the Federal Committee
on Pest Control Applicable to Y-12 Plant

M-47 Kelthane

Aphids were inadvertently included as being controlled by use of Kelthane. Aphid infestation has not been a problem, therefore no immediate action is planned. Should treatment be necessary, Malathion will be used as recommended.

M-52 Sanitabs

The use of Sanitabs as a disinfectant has been effective in control of the growth of visible bacteria and fungi in showers, commodes, urinals, wash basins, and floor drains. The manufacturer recommends four Sanitab tablets per three gallons of water. Our program will be revised to include these recommendations. Visible cleanliness is the basis for measurement of effectiveness.

M-53 Roccal

The program in the use of Roccal is to control bacteria and fungi on floors in the laboratories and hallways. The objective is to lessen the possibility of contamination of culture experiments by tracking or airborne transmission by personnel movement. The use of exposure plates has confirmed the effectiveness of the program by the difference in bacteria and fungi count before and after application of Roccal.

M-59 Esteron

The manufacturer recommends two to three quarts of Esteron 44 - (2, 4-D) per 100 gallons of water per acre for general weed control. Also, they recommend higher concentration for less sensitive weeds. In our experience, this material has been effective at higher concentrations for the control of wild onions. This is the basis for our use of one gallon of Esteron (2, 4-D) per 100 gallons of water per acre.

1966 PEST CONTROL SURVEY

-Addendum-

DEPARTMENT: U. S. Atomic Energy Commission
Oak Ridge Operations Office
Oak Ridge, Tennessee

May 31, 1966

LOCATION: Y-12 Plant; Oak Ridge, Tennessee; Union Carbide Corporation -
Nuclear Division; Plant Services Department

XVII. (1) PROGRAM: Control of algae, bacteria, and fungi in cooling tower.

(2) OBJECTIVE: Prevent accumulation of algae, bacteria, and fungi in wood
cooling towers to prevent rot and decay.

(3) FUNGICIDE USED:

(a) Common Name - Betz Fungicide F-14

(b) Chemical Name - Sodium Pentachlorophenate

(c) Trade Name - Sodium Pentachlorophenate..... 20.20%
Sodium 2-4-5 Trichlorophenate..... 7.50%
Dehydro abietyl ammonium phenoxide..... 2.00%
Sodium Salts of other chlorophenols.... 3.50%
Inert ingredients..... 66.80%

(d) Amount Applied for Season - 2,400 pounds.

(e) Rate of Application - Applied two times per week in
solution form at .2 pounds per
1,000 gallons of water.

(f) Area to be Treated - 18 cooling towers, approximate size
18' x 66' x 4'.

(4) METHOD OF APPLICATION: By chemical feed pump.

(5) DESCRIPTION OF TREATMENT AREA: Recirculating cooling towers, redwood
construction.

(6) CROPS: None.

(7) WATER AREAS: East Fork Poplar Creek.

(8) PRECAUTIONS: Employees wear respirators, safety glasses, rubber gloves
when handling.

(9) TIME OF APPLICATION: Twice per week.

(10) OTHER AGENCIES INVOLVED: None.

- XVIII. (1) PROGRAM: Control algae, bacteria, and fungi in cooling towers.
- (2) OBJECTIVE: Prevent accumulation of algae, bacteria, and fungi in wood cooling tower to prevent rot and decay.
- (3) FUNGICIDE USED:
- (a) Common Name - Nalco 21-S
- (b) Chemical Name - Sodium Pentachlorophenate
- (c) Trade Name - Sodium Pentachlorophenate..... 25.00%
Sodium 2-4-5 Trichlorophenate..... 25.00%
Inert Ingredients..... 50.00%
- (d) Amount Applied for Season - 1,000 pounds.
- (e) Rate of Application - .08 pounds per 1,000 gallons of water once per week.
- (f) Area to be Treated - Eleven cooling towers, 8' x 6' x 1/2'.
These are the smaller systems.
- (4) METHOD OF APPLICATION: Briquette fed manually into tower basin.
Once per week.
- (5) DESCRIPTION OF TREATMENT AREA: Recirculating cooling towers, redwood construction.
- (6) CROPS: None
- (7) WATER AREAS: East Fork Poplar Creek.
- (8) PRECAUTIONS: Employees wear rubber gloves and safety glasses when handling.
- (9) TIME OF APPLICATION: Once per week.
- (10) OTHER AGENCIES INVOLVED: None

CB

OAK RIDGE NATIONAL LABORATORY

OPERATED BY
UNION CARBIDE CORPORATION
NUCLEAR DIVISION



POST OFFICE BOX X
OAK RIDGE, TENNESSEE 37831

OFFICE OF THE DIRECTOR

May 31, 1966

U. S. Atomic Energy Commission
Post Office Box E
Oak Ridge, Tennessee

Attention: Mr. S. R. Sapirie

Gentlemen:

Statements of Federal Committee on Pest Control

The following information is supplied per your request of May 23, 1966, on the above subject:

ITEM I

"M-37 ORNL. The Baygon concentrate is presumably to be diluted before use. An acceptable dilution would be 1/2 pint of the product in one gallon of water."

REPLY

The responsible group at ORNL follows manufacturer's recommendations for dilution of this material. It is in fact 1/2 pint of the Baygon concentrate per one gallon of water.

ITEM II

"M-43 ORNL. The percentage of sodium pentachlorophenate in each gallon should be given. The dosage of 25 gallons per 171,000 gallons would not give 200 ppm of product. The application is given as both 'twice each week' and 'once each week'. What is it? The ppm of active ingredient is more pertinent than the ppm of product."

REPLY

There are 21 cooling tower locations at ORNL with capacities ranging from 240 gallons to 171,000 gallons. The rate of application of sodium pentachlorophenate of about 25 gallons per week refers only to usage and not dosage.

The fungicide is actually applied by adding a calculated quantity into

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to the public by

David R. Hamlin
Technical Information Officer
ORNL Staff

1/31/96
Date

Mr. S. R. Sapirie

May 31, 1966

Page 2

the cooling tower basin. This quantity is sufficient to give a concentration of 200 ppm of the pentachlorophenate in the cooling system water. Blow down of the cooling tower water is stopped for a period of up to eight hours (depending on the system size) during this treatment.

Normally, fungus and algae control is accomplished by weekly treatments during spring, summer and fall seasons. However, during the summer months, two treatments per week are applied as necessary to prevent and/or control growth of fungus and algae in the cooling tower basin.

ITEM III

"M-43 ORNL and ORGDP. Sodium pentachlorophenate is applied weekly to the basins of the cooling towers. The Clinch River is listed (ORNL) as the water area involved. Neither sodium pentachlorophenate nor pentachlorophenol are registered for use in water areas, and a question as to possible contamination of the river water may be in order.

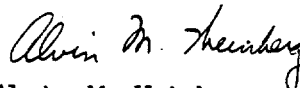
"The use of this preservative is mentioned for several additional tower facilities of the Oak Ridge Office, but there is no indication of any water areas being involved. We would have expected the end use of some stream or river and, perhaps, a question on this score could be raised."

REPLY

Certainly the presence of pentachlorophenates in the Clinch River would be undesirable. The Industrial Hygiene Department at ORNL is presently undertaking a program to monitor White Oak Creek and the Clinch River for the presence of sodium pentachlorophenate. This sampling program will determine if contamination of the river water with sodium pentachlorophenates exists. The present feeling is that it does not.

Please advise me if you need additional information.

Sincerely yours,



Alvin M. Weinberg
Director

AMW:TAL:mlh

cc: K. W. Bahler
N. E. Bolton
C. E. Larson
T. A. Lincoln
M. E. Ramsey



UNITED STATES
ATOMIC ENERGY COMMISSION

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IN REPLY REFER TO:

ORB:CSS
Copies Fwd. by MER; 12-13-66
NEBolton
TALincoln

Oak Ridge, Tennessee
December 7, 1966

Union Carbide Corporation
Nuclear Division
Post Office Box P
Oak Ridge, Tennessee

... ..
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Attention: Dr. C. E. Larson, President

Subject: HEADQUARTERS' REQUEST FOR 1967 INFORMATION ON PLANNED USE OF
PEST CONTROL AGENTS; PESTICIDES, HERBICIDES, AND FUNGICIDES.

Gentlemen:

Reference is made to our letter of March 17, 1966, with which we forwarded the 1966 AEC Survey for the Federal Committee on Pest Control. In our letter we noted that a request would probably be made for 1967 information.

We now have this request from the Division of Operational Safety, Headquarters, for updating information on your planned uses of pesticides in the four Carbide plants for the 1967 pest control season.

This year the FCPC has asked AEC to provide summaries of pest control activities for 1967 with emphasis on:

1. Specific projects such as short-term control effects against pest outbreaks.
2. Specific programs such as continuing pest control efforts against a distinct pest or group of pests, and
3. Housekeeping-type programs that are normally conducted within the immediate confines of buildings and adjacent premises.

Two FCPC forms are provided for development of replies. FCPC form #1 (five copies enclosed) is to be used in summarizing all specific projects, specific programs, and housekeeping-type programs, as per instruction sheet enclosed. FCPC form #2 is to be used for new or significantly-changed programs, as per instruction sheet enclosed. Five copies of form #2 are enclosed for your use.

This document has been approved for release
to the public by:

David R. Hamm 1/31/96
Technical Information Officer
ORNL Site

ChemRisk Document No. 2651 (9 of 14)

Dr. C. E. Larson

- 2 -

December 7, 1966


Care must be taken in outlining the programs and pesticide uses for FCPC. On the basis of experience last year, the most common errors, some having been corrected through later correspondence, were in the spelling of organic chemical compounds, improper use of trade names and chemical names, and in the estimates of doses and applications.

Technical questions concerning preparation of the summaries may be directed to A. F. Perge, Materials and Process Control Branch, Division of Operational Safety, AEC Headquarters. The completed summaries should reach ORO by January 1, 1967, and may be addressed to Dr. C. S. Shoup, Research and Development Division.

We appreciate your continued cooperation in this program.

Very truly yours,



 S. R. Sapirie
Manager
Oak Ridge Operations

Enclosures:

1. FCPC Form #1
2. FCPC Form #2
3. Instruction Sheet

CC: R. C. Armstrong
C. A. Keller
A. F. Perge, HQ
H. M. Roth

FCPC FORM #1

FEDERAL COMMITTEE ON PEST CONTROL
SUMMARY OF PROJECTS AND PROGRAMS INVOLVING PESTICIDES, CALENDAR YEAR 196_

Date Submitted: _____

Department: _____

Agency: _____

Division: _____

(1) Agency Program No.	(2) Location (State)	(3) Objective (Pest)	(4) Pesticide Used Common Name	(5) Amount per acre	(6) Acreage To Be Treated	(7) Method of Application	(8) Crops	(9) Water Areas	(10) Period of Treatment
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FPC FORM #2

FEDERAL COMMITTEE ON PEST CONTROL
SUMMARY REPORT ON NEW OR SUBSTANTIALLY
CHANGED PROJECTS OR PROGRAMS USING PESTICIDES
PROGRAM NO. _____

DATE _____

1. Department, Agency, & Division:
2. Program Title:
3. Location:
4. Objectives:
5. Economic importance:
6. Description of areas to be treated:
7. Special precautions exercised:
8. Are any other Federal Departments involved?
9. Are State and local governmental agencies involved?
10. Are private institutions, agencies, or individual interests involved?

INSTRUCTIONS FOR USE OF FCPC FORMS #1 AND #2

FCPC Form #1: This form is to be used to summarize all specific projects, specific programs, and housekeeping-type programs as follows:

- (1) Program identification number assigned by agency.
- (2) If more than one State, indicate geographic region, e.g.; Southwest, New England, etc.
- (3) List class of plant or animal pest to be controlled, e.g.; grasshoppers, spruce budworm, predatory animals, rough fish, aquatic weeds, etc.
- (4) Show common name as shown as the coined name in Pesticide Index by D.E.H. Frear, College Science Publishers, State College, Pennsylvania (approx. \$4.50). In the few instances where there is no common (coined) name, use the chemical name with trade name in parenthesis. Give percent of active ingredient in formulation; e.g., 5% DDT w.p.
- (5) Indicate rate of application and number of treatments; e.g., 1 lb/A (1). Where unit amount cannot be computed in acres, show rate in terms of square, lineal, or cubic feet, tree or trap, etc.
- (6) If not in acres, indicate as "Spot Treatment", "Buildings", etc.
- (7) Specify aircraft, ground equipment, or hand treatment.
- (8) Indicate whether treatment involves meat animals, or food, or forage crops. If not, insert "None".
- (9) Indicate whether treatment involves rivers, lakes, irrigation or domestic waters. If not, insert "None".
- (10) If single treatment, show month. If more than one treatment, list period as "Spring", "Summer", etc. and interval between treatments.

FCPC Form #2: This form is to be used, in addition to Form #1, for new or significantly changed specific projects, specific programs, or housekeeping-type programs as follows:

(Heading) Program identification number assigned by agency.

- (1) Identify component reporting and name and telephone number of person that may be called for further details.
- (2) List class of plant or animal pest to be controlled, e.g.; grasshoppers, predatory animals, aquatic weeds, etc.
- (3) Specific location, or, if more than one State indicate geographic region (e.g.; Southwest, New England, etc.)
- (4) Explain the broad purpose(s) of the program or project.
- (5) Indicate the economic basis on which, the decision to use pesticides was based.
- (6) Describe briefly the terrain, buildings, etc. and the human or other animal inhabitants in the areas to be treated.
- (7) Types of clothing, equipment, and methods specifically used in the interest of protecting man, and non-target animals and plants from adverse effects of control operations. Note particularly storage, application and container-disposal techniques. Include whether materials used were in accord with approved, registered use.
- (8)-(10) Show what other Federal Departments, State or local government agencies, and private interests or institutions may be involved in the program or project, in terms of evaluating efficacy and safety of pest control, technical guidance given, etc.

OAK RIDGE NATIONAL LABORATORY

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NUCLEAR DIVISION



POST OFFICE BOX X
OAK RIDGE, TENNESSEE 37830

62

OFFICE OF THE DIRECTOR

December 27, 1966

C. S. Shoup
Research & Development Division
Oak Ridge Operations
United States Atomic Energy Commission
Oak Ridge, Tennessee

Dear Dr. Shoup:

The information requested in Mr. Sapirie's letter of December 7, 1966, to Dr. C. E. Larson has been assembled and is attached. It is readily apparent that the information will not conform to the suggested FCPC Form No. 1. Where necessary, appropriate notes have been added to clarify the usages here at the Laboratory.

Please advise if you have any comments or questions regarding the attached information.

Very truly yours,

A handwritten signature in cursive script, appearing to read "H. G. MacPherson".

H. G. MacPherson
Deputy Director

HGM:NEB:ph

Attachment

cc: C. E. Larson
F. R. Bruce
M. E. Ramsey
T. A. Lincoln
N. E. Bolton

This document has been approved for release
to the public by:

A handwritten signature in cursive script, appearing to read "David C. Hamlin".
Technical Information Officer
ORNL Site
1/31/96

ChemRisk Document No. 2651 (10 of 14)

ECPC FORM #1

FEDERAL COMMITTEE ON PEST CONTROL

SUMMARY OF PROJECTS AND PROGRAMS INVOLVING PESTICIDES, CALENDAR YEAR 1967

Date Submitted: December 23, 1966

Department: U. S. Atomic Energy Commission Agency: Oak Ridge Operations Division: Oak Ridge National Laboratory
Union Carbide Corporation

(1) Agency Program No.	(2) Location (State)	(3) Objective (Pest)	(4) Pesticide Used Common Name *See Notes	(5) Amount per acre *	(6) Acreage To Be Treated	(7) Method of Application	(8) Crops	(9) Water Areas	(10) Period of Treatment
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I	Tennessee	Insect Control in Cafeteria & Lunchrooms	Pyrethrins I&II- 0.20% Piperonyl Butoxide, 1.00% (Kel-San 51)		174,000 sq. feet	Fogger	NA	NA	As needed
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Note: Kel-San 51 is used as a dry fog for insect control for cafeterias and lunchroom areas. The frequency of use is approx. 2-week intervals during summer months and as needed and indicated through cooler months.

II	Tennessee	Cockroaches	O-isopropoxyphenyl methyl carbamate- 13.90% (Baygon)		900 lineal feet	Hand spray	NA	NA	
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Note: Baygon is used as a baseboard spray for control of cockroaches in the cafeterias, lunchrooms and change rooms. Spraying is normally done at two-week intervals.

FCPC FORM #1

FEDERAL COMMITTEE ON PEST CONTROL

SUMMARY OF PROJECTS AND PROGRAMS INVOLVING PESTICIDES, CALENDAR YEAR 1967 Date Submitted: December 23, 1966Department: U. S. Atomic Energy Commission Agency: Oak Ridge Operations Division: Oak Ridge National Laboratory

Agency Program No.	Location (State)	Objective (Pest)	<div>Pesticide Used Common Name Amount</div>	Acreage To Be Treated	Method of Application	Crops	Water Areas	Period of Treatment
(1)	(2)	(3)	(4)	(5)	(7)	(8)	(9)	(10)

III

Tennessee Fly

Dimethoate--43.50%
(Cygon)

NA

Hand Spray

NA

NA

Note: Cygon is used for fly control around garbage containers. The rate frequency of application is weekly during summer months and as required for adequate fly control during winter months.

IV

Tennessee Termite

Chlorodane--72.50%

2500 sq.
feet

Direct

NA

NA

Note: Chlorodane is used for termite control around wooden building foundations and subslab treatments. The rate of application is 2 gallons per 5 linear feet or 2 gallons per 10 square feet, of 1% chlorodane solution.

V

Tennessee Fly

Pyrethrins-0.30%
Flperonyl Butoxide-
0.60%; N-Octyl-
bicycloheptane
dicarboximide-1.0%
(Air-Kem)

NA

Aerosol Can

NA

NA

Note: 16-oz. aerosol spray cans of Air-Kem are used for fly control in offices and laboratories. No estimate of cubic footage involved is possible; the material is used as needed for adequate fly control in the areas mentioned.

FCPC FORM #1

FEDERAL COMMITTEE ON PEST CONTROL

SUMMARY OF PROJECTS AND PROGRAMS INVOLVING PESTICIDES, CALENDAR YEAR 1967

Date Submitted: December 23, 1966Department: U. S. Atomic Energy Commission Agency: Oak Ridge Operations Division: Oak Ridge National Laboratory

Agency Program No.	Location (State)	Objective (Pest)	<u>Pesticide Used</u> Common Name	Acreage To Be Treated	Method of Application	Crops	Water Areas	Period of Treatment	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)

VI Tennessee Pest Control of Shrubs, Plants, Trees, Etc.

Malathion-50.00%

See Note

Garden Sprayer

NA

NA

Note: Malathion is used as a broad spectrum insecticide for pest control on shrubs and trees. Approximately a 2% solution is used in garden sprayers; no estimate of the number of plants, shrubs and trees involved can be made.

VII

Tennessee Stinging Insects

Pyrethrins I&II

NA

16-oz. Aero-sol Cans

NA

NA

-0.05%
Rotenone-0.40%
(Wasp Stopper)

Note: Wasp Stopper is purchased in 16-oz. aerosol spray cans as a quick-kill insecticide to control all stinging insects in work areas. The material is sprayed directly on the nests containing wasps, ground hornets and/or other stinging insects.

FCPC FORM #1

FEDERAL COMMITTEE ON PEST CONTROL

SUMMARY OF PROJECTS AND PROGRAMS INVOLVING PESTICIDES, CALENDAR YEAR 1967

Date Submitted: December 23, 1966

Department: U. S. Atomic Energy Commission Agency: Oak Ridge Operations Division: Oak Ridge National Laboratory

Agency Program No.	Location (State)	Objective (Pest)	Pesticide Used Common Name	Amount Used	Acreage To Be Treated	Method of Application	Crops	Water Areas	Period of Treatment
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)

VIII Tennessee Rodents

Fluoracetamide-97.00%
(Fluorokil)

See Note NA NA

Note: Fluorokil is purchased and used for rodent control inside buildings at the Laboratory. Grass seed is soaked in a 6% solution of the rodenticide and placed in areas where rodents are observed. Such seed are conspicuously labeled "Poison".

IX Tennessee Chickweed

2-(2,4,5 tri-
chlorophenoxy)
propionic acid-13.80%
(Clover & Chickweed
Killer)

Garden sprayer

NA

As needed

Note: Clover and Chickweed Killer is used specifically for the control of chickweed on lawn areas in the vicinity of the 4500 building complex. A standard garden sprayer is used in the application.

X Tennessee Honeysuckle
& Weeds

2,4,5 trichlorophen-
oxy acetic acid-65.30%
(Esteron 245)

Garden &
Power Sprayers

NA

Note: Esteron 245 is used as a selective herbicide to control growth of honeysuckle brush and weeds along security fences.

FCPC FORM #1

FEDERAL COMMITTEE ON PEST CONTROL

SUMMARY OF PROJECTS AND PROGRAMS INVOLVING PESTICIDES, CALENDAR YEAR 1967 Date Submitted: December 23, 1966

Department: U. S. Atomic Energy Commission Agency: Oak Ridge Operations Division: Oak Ridge National Laboratory

Agency Program No.	Location (State)	Objective (Pest)	<u>Pesticide Used</u> Common Name	Acres To Be Treated	Method of Application	Crops	Water Areas	Period of Treatment	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)

XI	Tennessee	Weeds	Bromacil (5-bromo-3-sec-butyl methyl-uracil) - 50%	4	Power Sprayer	NA	NA	As required for weed control
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Note: Hyvar-X is used as a nonselective herbicide to control weed growth in electric substations and other similar areas where control is needed.

XII	Tennessee	Pine Beetle	Benzene Hexachloride		See Footnote	NA	NA	As required for control
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Note: Benzene hexachloride is used to control the pine beetle infestation of southern pine forests located on the AEC reservations. Although it is not possible to predict the exact acreage involved, it is anticipated that approx. 4250 acres will be treated using approximately 100 gallons of 11% benzene hexachloride. The method of application is direct. Individual infested trees are felled, bucked and the bark sprayed to point of runoff with the EHC-diesel oil formulation. Hand sprayers and power foggers with conical spray heads are used.

XIII	Tennessee	Algae &	Non-oxidizing Biocide (Sodium Pentachlorophenol)	NA	See Note	NA	Watts Bar Lake	See Note
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FCPC FORM #1

FEDERAL COMMITTEE ON PEST CONTROL

SUMMARY OF PROJECTS AND PROGRAMS INVOLVING PESTICIDES, CALENDAR YEAR 196_ Date Submitted: December 23, 1966

Department: U. S. Atomic Energy Commission Agency: Oak Ridge Operations Division: Oak Ridge National Laboratory

Agency Program No.	Location (State)	Objective (Fest)	Pesticide Used Common Name	Amount Pesticide	Acres To Be Treated	Method of Application	Crops	Water Areas	Period of Treatment
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)

XIII

Note: Sodium pentachlorophenol is used to prevent deterioration of cooling towers due to fungus growth as well as maintaining an even heat transfer rate within the equipment heat exchanger. This non-oxidizing biocide is added direct to the base of the cooling tower. The amount of biocide used will vary, depending on the size of the cooling tower being treated. An amount sufficient to produce a concentration of 200 parts per million in the cooling tower system is added. There is no blowdown during an 8 hour period immediately following the application.

INTRA-LABORATORY CORRESPONDENCE

OAK RIDGE NATIONAL LABORATORY

April 25, 1967

To: T. A. Lincoln
M. E. Ramsey

Subject: Pesticide Report for 1967

The following questions regarding the above subject were asked by the FCPC. Mr. Hervin, of the Biology Branch (AEC-ORO), telephoned the questions to me. I have indicated the answers which were supplied.

I. Program VIII - Fluorokil for Rodent Control

The FCPC challenges the use of this material as a single dose poison in an occupied building. Why is it used? Why not use an anticoagulant?

Answer: Prior to 1964, D-Con was used for rodent control in ORNL buildings. D-Con is an anticoagulant and warfarin is the active ingredient. While the material is an effective poison, it will not adequately control rodents unless used continuously. Fluorokil was used on a trial basis and found to be highly effective. Also, the frequency it must be used to maintain control of rodents is intermittent. On the surface, at least Fluorokil would appear to be less hazardous to use since the material is left out for approximately one week in areas when rodents are observed. This treatment is repeated as needed -- usually every three to four months. The Laboratory would welcome a recommendation from the FCPC on a specific anticoagulant.

II. Program IX - Chickweed Killer

What is the dosage or rate of application of this herbicide? (Include the lbs. of a.e./acre.)

Answer: This material is purchased in liquid form. The active ingredient is 13.80% in the formulation. Application rate is one pint/acre. A pint of this formulation weighs about one pound; therefore, the application rate is about 0.138 pounds a.e./acre.

III. Program XI - Weed Killer (Bromacil)

What is the rate of application?

Answer: Bromacil is applied at a rate of two pounds of active ingredients per acre.

IV. Program XIII - Algae and Slime Control Using Sodium Pentachlorophenol

State: (1) the concentration of the sodium pentachlorophenol in the blowdown water, (2) the quantity of blowdown water, (3) frequency

This document has been approved for release to the public by

David L. Hamm 1/31/96

ChemRisk Document No. 2651 (11 of 14)

of blowdown, and (4) estimate of dilution. The FCPC would also like to know how often, when, and who have sampled the effluent and receiving waters. Is the material detectable? Does it affect the water taste? How far downstream is the next significant user of the water for potable water? Have there been any complaints concerning the water? Have PHS, FWPCA, or State officials sampled or questioned this practice?

Answer: (1) The exact concentration of sodium pentachlorophenol in the blowdown water is not known -- probably less than 25 ppm.

(2) The combined quantity of blowdown water is 275 gallons per minute (maximum).

(3) Except during the eight hours of treatment when no blowdown is permitted, blowdown is continuous.

(4) An estimate of the dilution is about 25-50 X by discharge to White Oak Creek and 250-500 X by discharge of White Oak Dam Effluent to the Clinch River. However, these figures have no meaning because they are based only on the flow rates of White Oak Creek and the Clinch River. They do not take into account the amount absorbed in the soil of the creek bed or the amount biochemically oxidized in White Oak Embayment before discharge. The Industrial Hygiene Department at ORNL routinely analyzes water samples for SPCP from White Oak Dam Effluent, K-25 pumping station and Clinch River Mile 10. Samples are taken on a weekly basis using a proportional or continuous water sampler. Pentachlorophenol is not detectable in any of these water samples. Since the concentration for the past one and a half years has always been below one ppb, one would not expect any effect on the taste of the water. The next significant user of the water for potable purposes is ORGDP, some nine miles downstream from the point where the White Oak Dam Effluent enters the Clinch River. There have been no complaints and no one but the FCPC has questioned this practice.

Without control of algae and slime on a weekly basis, these cooling towers probably would not operate more than a week before shutdown would be automatic due to the plugging of these systems. Indeed, if the use of this biocide were banned in this application, the only available substitute would be to add chlorine feed systems to the cooling towers. These systems are extremely expensive to install and maintain. The costs involved would be astronomical.

The above information represents the latest AEC Request for information and is fairly representative of the type of questions which we must answer. Also, these requests require a great deal of time to assemble the data and prepare reply. This request, for example, required about 15-20 man hours to run down and assemble the information.


N. E. Bolton

OAK RIDGE NATIONAL LABORATORY

OPERATED BY
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NUCLEAR DIVISION



POST OFFICE BOX X
OAK RIDGE, TENNESSEE 37830

December 11, 1967

U. S. Atomic Energy Commission
Post Office Box E
Oak Ridge, Tennessee

Attention: Mr. H. V. Heacker, Chief
Health and Nuclear Safety Branch
Safety Division

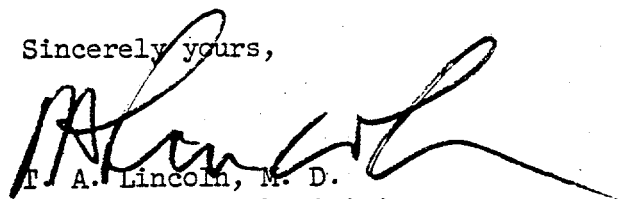
Gentlemen:

Subject: HEADQUARTERS' REQUEST FOR SUMMARY OF PROPOSED 1968 PEST CONTROL PRACTICES

The information requested in Roth's letter of November 24, 1967 to Dr. A. M. Weinberg regarding the above subject has been assembled. The attachments are a summary of the pesticides used at the Oak Ridge National Laboratory during 1967. It is anticipated that the 1968 pest control program will be essentially the same.

Please advise me if you have any comments or questions regarding the attached information.


Sincerely yours,


F. A. Lincoln, M. D.
Director, Health Division
Oak Ridge National Laboratory

TAL:NEB:bh

cc: N. E. Bolton
F. R. Bruce
J. R. Gissel
H. G. MacPherson
M. E. Ramsey
A. M. Weinberg

This document has been approved for release
to the public by:

 1/31/96
Technical Information Officer
ORNL Site

Department: U. S. Atomic Energy Commission Agency: Oak Ridge Operations Date Submitted: December 11, 1967
Division: Oak Ridge National Laboratory
Union Carbide Corporation

Object No.	State and/or Area	Objective	Pesticide to be Used Name	Rate of Application	No. of Units to be Treated	Method of Application	Sensitive Areas	Time of Application	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	

I	Tennessee	Fly Control In Cafeteria & Lunchrooms	Pyrethrins I & II 0.20%, Piperonyl Butoxide, 1.00% (Kel-San 51)		4	Dry Fogger	Cafeteria & Canteens	4:30-7:00 PM Daily, April-October	Fogging is performed when eating areas are vacant.
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*Note: Application rate is approximately 1/2 gallon per 174,000 square feet. The frequency of use is approximately 2 week intervals during summer months and as indicated during cooler months.

II	Tennessee	Cockroach Control	O-isopropoxyphenyl methylcarbamate 13.90%, Inert, 86.10%		4	Hand Pump Sprayer	Cafeteria & Canteens	2 week intervals	
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*Note: The concentrate is diluted at a rate of 1/2 pint per gallon. The application rate is 2 gallons of dilute material per 900 lineal feet.

III	Tennessee	Termite Control	Chlorodane Technical Chlorodane 72.5%, Aliphatic Petroleum distillate, 27.5%		1	Power Sprayer	None	May	
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*Note: A 1% solution of chlorodane is made up and applied around building foundations and a sub-slab treatment at a rate of 2 gallons per 5 lineal feet or ten square feet.

IV	Tennessee	Termite Control	Orkil (Chlorohepton) 0.02%		1	Power Sprayer	None	June	
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*Note: 1030 gallons per 24,000 square feet was applied by Orkin (commercial pest control operator) for termite treatment in stores warehouse.

Department: U. S. Atomic Energy Commission Agency: Oak Ridge Operations Date Submitted: December 11, 1967
Division: Oak Ridge National Laboratory
Union Carbide Corporation

Project No.	State and/or Area	Objective	Pesticide to be Used Name	Rate of Application*	No. of Units to be Treated	Method of Application	Sensitive Areas	Time of Application	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	

V Tennessee Fly Control Air-Kem
 Pyrethrins, 0.30%
 Technical piperonyl butoxide, 0.60%
 N-octyl-bicycloheptene dicarboximide, 1.00%
 Petroleum distillate, 18.10%
 Inert, 80.00%
 30-40 Offices & Labs
 Aerosol Spray Cans
 16-oz. size
 None As required
 *Note: 576 cans were used during 1967. No application rate can be calculated.

VI Tennessee Fly Control Chlorodane, 2.00%
 Lindane, 1.00%
 Deodorized kerosene, 97.00%
 4 dumpsters
 9 yd. capacity
 & 30-20 gallon
 garbage cans
 Hand Pump
 Sprayer
 None
 April-October
 As needed for adequate fly control
 *Note: 20 gallons used annually in 1/2 per cent solution every 1 to 2 weeks.

VII Tennessee Broad spectrum insecticide Malathion
 Malathion emulsion
 50.00%
 Xylene, 45.00%
 Inert, 5.00%
 See Note
 Hand Pump
 Sprayer
 None
 April-October

*Note: Malathion is used for pest control on shrubs and trees. A 2% solution in water is used in garden sprayers. Approximately 1500 shrubs and trees are sprayed annually.

VIII Tennessee Quick-kill insecticide for stinging insects Wasp Stopper
 Methylene chloride, 11.00%
 Perchloroethylene, 32%
 Trichloromonofluoromethane, 20%
 Pyrethrins I & II, 0.05%
 Rotenone, 0.40%
 Pine oil, 2.80%
 Dichlorodifluoromethane, 20%
 Petroleum distillate, 13.75%
 See Note
 Aerosol
 Spray Can
 16-oz. size
 None
 As required
 *Note: Approximately 192 cans are used annually. One can is sufficient to destroy 3 wasp nests.

Department: U. S. Atomic Energy Commission

Agency: Oak Ridge Operations

Date Submitted: December 11, 1967

Division: Oak Ridge National Laboratory
Union Carbide Corporation

Project No.	State and/or Area	Objective	Pesticide to be Used Name	Rate of Application *	No. of Units to be Treated	Method of Application	Sensitive Areas	Time of Application	Remarks
1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	

X	Tennessee	Body lice Control	DDT, 25.00% Petroleum distillate, 75.00%		10	Hand Pump Sprayer	None	As required	
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*Note: The DDT concentrate is diluted to a 1% solution in water. Approximately 2-1/2 gallons of dilute solution is required per unit (change house and toilet facilities).

X	Tennessee	Repel insects	Insect repellent N,N-diethyl- metatoluamide, 42.50% Other isomers, 7.50% Inerts, 50.00%		NA	Rub on skin	None	As needed	
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*Note: This material is used by employees cutting weeds and brush. The annual usage is about 120 1-1/2 bottles.

XI	Tennessee	Fly control	DDVP 20% DDVP-impregnated resin strips		16	See Note	None	April-October	
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*Note: Approximately 48 resin-impregnated strips are used annually in shop areas. One strip per 2000 sq. feet is used. The strips are simply suspended in the shop areas approximately 7 feet above the floor.

XII	Tennessee	Insect control	Diazinon 0,0-dimethyl O-(2- isopropyl-4-methyl- 6-pyrimidinyl) phosphorothioate, 25% Aromatic petroleum derivative solvent, 57% Inert, 18%		500 shrubs & trees	Hand Pump Sprayers	None	June-September	
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*Note: Annual usage of Diazinon is 1 gallon. The material is diluted to a 1% solution and applied as required during summer months for adequate insect control.

Department: U. S. Atomic Energy Commission

Agency: Oak Ridge Operations

Date Submitted: December 11, 1967

Division: Oak Ridge National Laboratory
Union Carbide Corporation

Object No.	State and/or Area	Objective	Pesticide to be Used Name	Rate of Application *	No. of Units to be Treated	Method of Application	Sensitive Areas	Time of Application	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
XIII	Tennessee	Chickweed Control	MCCP Potassium salt of 2-(2-methyl-4-chlorophenoxy) propionic acid, 25.90% Inert, 75.10%		10 Acres	Hand Pump Sprayer	None	January-April	
									*Note: Annual usage is approximately 5 gallons. The material is diluted to a 1% solution in water and applied at a rate of about 12-1/2 gallons per acre to control chickweed in lawn areas.
XIV	Tennessee	Weed Control	Esteron 245 2, 4, 5, trichloro- phenoxy acetic acid, 65.30% Inert, 34.70%		See Note	Hand Pump Sprayer	None	May-September	
									*Note: Approximately 60 gallons are used annually. The material is applied at a rate of 3 pounds per acre. Primary use is for control of weeds and honeysuckle along security fences. Two applications are necessary and approximately 100 acres are involved.
XV	Tennessee	Weed Control	2-4-D 2-4 dichlorophenoxy acetic acid, 72.80% Inert, 27.20%		25 Acres	Hand Pump Sprayer	None	May-September	
									*Note: Annual usage is approximately 30 gallons. The application rate is 3 pounds per acre to control broadleaf plants, such as plantain, dandelions, and so forth. Application is repeated 3 times during growing season.
XVI	Tennessee	Weed Control	Karmex Diuron 3-(3,4 dichloro- phenyl)-1,1 dimethylurea, 80%. Inert, 20%		10 Acres	Power and Hand Sprayers	None	June	
									*Note: The herbicide is used for weed control in electrical substations. Annual usage is approximately 48 pounds. The application rate is 2 pounds per acre and repeated one time.

Department: U. S. Atomic Energy Commission Agency: Oak Ridge Operations Date Submitted: December 11, 1967
 Division: Oak Ridge National Laboratory
Union Carbide Corporation

ject o.	State and/or Area	Objective	Pesticide to be Used Name	Rate of Application *	No. of Units to be Treated	Method of Application	Sensitive Areas	Time of Application	Remarks
1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	

XVII	Tennessee	Vegetation Control	Pramitol		5 Acres	Power Sprayer	None	June	
			Prometone, 5.00%						
			Sodium chlorate, 40.00%						
			Sodium metaborate, 50.00%						
			Inert, 5.00%						

*Note: Annual usage of this material is approximately 210 gallons. The material is added at a rate of 400 pounds per acre. The primary use is to control vegetation under security fences and storage yards. The material is a non-selective herbicide.

XVIII	Tennessee	Algae & Slime Control	Non-oxidizing Biocide (Sodium Pentachlorophenate)	See Note	Direct Addition	None	As required to prevent algae & slime build up in cooling tower.		
					to cooling tower basin.				

*Note: There are about 21 cooling tower locations at ORNL with capacities ranging from 240 to 171,000 gallons. The rate of application of sodium pentachlorophenate is about 80 gallons per week and refers only to usage not dosage. The fungicide is actually applied by adding a calculated quantity into the cooling tower basin. This quantity is sufficient to give a concentration of 200 ppm of the pentachlorophenate in the cooling system water. Blow down of the cooling tower water is stopped for a period of up to eight hours (depending on the system size) during this treatment. Normally, fungus and algae control is accomplished by weekly treatments during spring, summer and fall seasons. However, during the summer months, two treatments per week are applied as necessary to prevent and/or control growth of fungus and algae in the cooling tower basin. The Industrial Hygiene Department has a routine water sampling program to characterize and quantify non-radioactive chemicals in plant discharges. Pentachlorophenates are checked on a routine basis and to date all concentrations of this material in the discharge from White Oak Lake have been well below the USPHS water limit of 0.001 ppm.

OAK RIDGE NATIONAL LABORATORY

OPERATED BY

UNION CARBIDE CORPORATION

NUCLEAR DIVISION



POST OFFICE BOX X

OAK RIDGE, TENNESSEE 37830

OFFICE OF THE DIRECTOR

December 18, 1968

CP

U. S. Atomic Energy Commission
Post Office Box E
Oak Ridge, Tennessee

Attention: Dr. H. M. Roth

Gentlemen:

Subject: REQUEST FOR SUMMARY OF PROPOSED 1969 PEST CONTROL PRACTICES

Attached is the ORNL summary of our planned use of pesticides for the 1969 pest control season, as requested in your letter of December 12, 1968.

Sincerely yours,

H. E. Weinberg
for

Alvin M. Weinberg
Director

AMW:NEB:bh

Attachment

cc: Mr. R. F. Hibbs
Mr. R. G. Jordan
Dr. C. E. Larson
Mr. R. A. Winkel
Mr. N. E. Bolton, 2-27-69
Dr. T. A. Lincoln "

This document has been approved for release
to the public by:

David R. Hamlin 1/31/96
Technical Information Officer Date
ORNL Site

FCPC FORM 1 (Rev. 68)

Date Submitted December 20, 1968
Division ORNL

Department Atomic Energy Commission

Agency: Oak Ridge

Project Number	Objective		Pesticide	Application				Season of Year	Location	Sensitive Areas	Remarks	
	Target Pest	Purpose		Method	Formulation to be applied	Pounds of active ingredient per acre unless otherwise reported	No. of acres to be treated unless otherwise reported					
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
ORNL-5	Weeds	Weed control along security fences	Esteron 245 (245T) (2,4,5, trichlorophenoxy acetic acid, 65.30%; Inert, 34.70%)	Hand & power Sprayer	Emulsion	247.2 ml of active ingredient/acre	190 acres	May-Sept.	ORNL Oak Ridge, Tennessee	None	See footnotes	
ORNL-6	Weeds	Weed control in lawn area	2-4-D (2-4 dichlorophenoxy acetic acid, 72.80%; Inert, 27.20%)	Hand & power Sprayer	Emulsion	275.5 ml of active ingredient/acre	65 acres	May-Sept.	Same	None	See footnotes	
ORNL-7	Weeds	Soil sterilization along security fences & storage yard	Pramitol (Prometon, 5%; Sodium chlorate, 40%; Sodium metaborate, 50%; Inert, 5%)	Hand & power Sprayer	Emulsion	119.2 ml of active ingredient/acre	90 acres	May-Sept.	Same	None	See footnotes	
ORNL-8	Algae and slime	Cooling tower protection	Sodium pentachlorophenate, 21%	Direct to coolant water	Liquid	4.4 gal	170,000 gal. Yields 125-150 ppm	Weekly	Same	White Oak Creek	See footnotes 2 & 3	
NOTE 1 - Applied by specially trained personnel												
NOTE 2 - No undesirable side effects noted												
NOTE 3 - Effluent from this embayment is monitored routinely for this material.												
												Concentrations are below USPHS water limits for this material.

t	Objective		Pesticide	Application					Location	Sensitive Areas	Remarks	
	Target Pest	Purpose		Common name, per cent of Active Ingredient or lb/gal	(4)	Method	Formulation to be applied	Pounds of active ingredient per acre unless otherwise reported				No. of acres to be treated unless otherwise reported
1	Fly	(3)	Kel-San 51 (Pyrethrins I & II, .2%; Technical piperonyl butoxide, 13%; Aliphatic petroleum distillate, 93.80%)	Fogger	Dry Fog	45.5 ml/200,000 cu. ft.	(7)	(8)	(9)	(10)	(11)	(12)
2	Cockroaches	Morale	Baygon (O-isopropoxyphenyl methylcarbamate, 13.90%; Inert 86.10%)	Hand sprayer	Solution	32.9 lb of active ingredient/gal/3500 linear feet		1.7 million As linear feet needed (baseboard application)	Weekly	ORNL, Oak Ridge Tenn.	Food handling & preparation areas	See footnotes 1 & 2
3	Termites	Building protection	Chloro-dane (Tech. chloro-dane, 72.50%; Aliphatic petroleum distillate, 27.50%)	Power Sprayer	Solution	15.7 ml/10 cu. ft.		5000 sq. ft. As needed		Same	Lunch rooms, cafeteria, and change rooms	See footnotes 1 & 2
4	Fly	Morale	DDVP (20% DDVP impregnated resin strips)	Located appropriately throughout areas to be treated	DDVP impregnated resin strips	1 strip/1000 cu. ft.		13,000 cu. ft. As needed		Same	None	See footnote 2



UNION CARBIDE CORPORATION
NUCLEAR DIVISION
P. O. BOX P, OAK RIDGE, TENNESSEE 37830

January 3, 1969

United States Atomic Energy Commission
Post Office Box E
Oak Ridge, Tennessee

Copy Fwd. by MER, 1-8-69
NEBolton, w/encl.

Attention: Mr. Charles A. Keller


Gentlemen:

Planned Use of Pest Control Agents - 1969

Attached is the ORGDP summary of our planned use of pesticides for the 1969 pest control season, as requested in your letter of December 12, 1968.

Since we have no new or significantly changed programs, FCPC Form #2 was not used. We consider our pest control programs effective and no known problems have resulted from the use of these chemical agents.

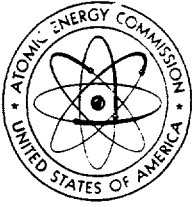
Very truly yours,


R. G. Jordan, Superintendent
Oak Ridge Gaseous Diffusion Plant

RGJ:NBS:md

Attachment

cc: Mr. J. M. Case
Mr. R. F. Hibbs
Dr. C. E. Larson
Dr. H. G. MacPherson
Mr. R. A. Winkel



UNITED STATES
ATOMIC ENERGY COMMISSION

OAK RIDGE OPERATIONS
P.O. BOX E
OAK RIDGE, TENNESSEE 37830
DEC 12 1968

AREA CODE 615
TELEPHONE 483-8611

Union Carbide Corporation
Nuclear Division
Post Office Box X
Oak Ridge, Tennessee

Copies Fwd. by *msr.* MER, 12-16-68
NEBolton, w/all encls. - To handle
TALincoln

Attention: Dr. A. M. Weinberg, Director
Oak Ridge National Laboratory

Subject: REQUEST FOR SUMMARY OF PROPOSED 1969 PEST CONTROL
PRACTICES

Gentlemen:

Reference is made to our letter dated November 24, 1967, in which ORNL's planned 1968 pest control practices were requested.

The enclosures describe the information necessary to outline your planned uses of pesticides for 1969. Regarding Item (c) of "Instructions to Federal Agencies," the Federal Committee on Pest Control (FCPC) has agreed to consider that an AEC contractor employee trained in the effective use of pesticides involved is equivalent to a Federal employee with similar training.

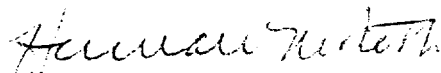
The information submitted by your office should conform to the enclosed style sheets, and accuracy, legibility and reproducibility must be assured. As noted in the FCPC instructions, accuracy in use and spelling of pesticide names and in arithmetic dosage and application is highly important. Use of the examples on sample FCPC #1 (rev. 68) should be helpful in indicating the type of information desired. The "Guide for Review of Agency Pest Control Programs" shows the points which concern the committee. Use of this guide as a check list in describing new programs should preclude the follow-up questioning which has been time consuming in past years. Please be sure that Item 6. (formulation to be used) includes the use concentration of the active ingredient in the material actually applied, as this was the most frequent follow-up question last year.

DEC 12 1968

Inquiries concerning the preparation of the summaries may be directed to J. F. Wing, Health and Nuclear Safety Branch, Safety Division, Oak Ridge Operations Office. Two copies of the completed summaries should reach ORO by January 5, 1969.

Your cooperation in this matter will be appreciated.

Very truly yours,



Herman M. Roth, Director
Laboratory and University Division
Oak Ridge Operations

OSH:JFW

Enclosures:

1. FCPC Instructions to Federal Agencies (2)
2. FCPC Instruction Sheet for Form #1 (2)
3. FCPC Form #1 (2)
4. FCPC Form #2 (2)
5. FCPC Appendix A, List of Pesticides for Special Interest (2)
6. FCPC Guide for Review of Agency Pest Control Programs (2)

cc: C. E. Larson, UCC-ND, w/o encls.
R. C. Armstrong, AMO, w/o encls.
J. A. Lenhard, Safety Division, w/o encls.